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Original Communications.

THE TREATMENT OF SYPHILIS.

BY H. M. CHRISTIAN, M.D.,

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Syphilis, occurring among the upper and middle classes of our people, in individuals endowed with good health and of fairly good habits, if seen early in the secondary stage of the disease and promptly and properly treated, is, in the great majority of cases, a perfectly curable disease. This is a proposition generally accepted as true at the present day by those having the widest experience in the treatment of the disease. Equally well recognized is the fact that syphilis occurring among the half-starved and half-washed members of the community, and in habitual drunkards, cannot be cured. The same may be said for cases having once developed tertiary lesions. Treatment can cause their disappearance, but cannot now cure the disease.

It would seem to the writer as if the time was ripe to call a halt on the spirit of ultra pessimism which has so long possessed the medical profession at large on the subject of the curability of syphilis, and which is so largely responsible for the attitude of the laity on the matter, so many of whom upon being told that they have contracted syphilis manifest a keen desire to write their wills and go in search of a revolver. There are, I am sure, in nearly every community of any size in this land men of business and social prominence,

occupying positions of trust and honor, who have at one time in their lives contracted syphilis, who have been cured, and are the fathers of many healthy children.

Granting then that the disease is capable of being cured, the first question that naturally arises is, When shall constitutional treatment be instituted? I think it is pretty generally admitted to-day that by far the safer plan is to wait for the evolution of cutaneous lesions before beginning constitutional treatment. The reasons for so doing are very obvious to those who have looked at all closely into this subject. In the first place, notwithstanding the parallel column of differential diagnosis between chancre and chancroid given in the text-books, those having the widest experience in the diagnosis and treatment of these conditions will agree with me, I am sure, that in very many if not a majority of instances an absolute diagnosis cannot be made. Again, it is a well developed clinical fact that the early administration of mercury does not in any way avert the disease or prevent the appearance of an eruption. It has only been found to modify the character and time of development of the skin manifestations; in other words, the evolution of the constitutional signs of the disease is very materially deranged. One can readily appreciate the hopeless confusion in the mind of the physician who, having mistakenly diagnosed a chancroid as a chancre, has pronounced the patient to have syphilis, has instituted immediate constitutional treatment, and subsequently finds that the expected rash fails to materialize. This uncertainty in the mind of the physician is of small moment, however, compared with the impression his recklessly spoken words have made upon the mind of the hapless patient, an impression that no time will ever eradicate. There is nothing to be lost and everything to be gained by waiting six or seven weeks for the natural evolution of the disease. There are, however, some conditions that arise occasionally that call for the early administration of mercury. These are: (1) when the chancre is located on the lip; (2) when from its position it may lead to the infection of others, as on the finger of the surgeon, obstetrician, or hospital orderly, or on the nipple of a nursing woman; (3) in those rare instances in which the initial lesion becomes phagedenic and threatens to destroy the prepuce or glans penis.

In taking up in detail the consideration of the treatment of secondary syphilis it is well to recognize three types of the disease that are usually encountered: (1) the benign form; (2) the benign form with a tendency to relapse; (3) a severe form of the affection.

The particular type which the disease assumes is of course, as in all infectious diseases, dependent upon the dose of the poison received, and the fertility of the soil on which it is deposited. I think there is little doubt but the majority of the cases of secondary syphilis seen to-day, at least among the better classes, are of the benign type. Here the macular rash appears at the proper time and is fairly well distributed over the trunk and limbs, rarely on the face. Accompanying the rash there is general adenopathy, with more or less sore throat and some few mucous patches perhaps in the mouth, with little if any alopecia. In this type of syphilis it will generally be found that the internal administration of mercury protiodide, one-third of a grain, three times daily, will probably be all that is necessary to bring about a prompt disappearance of the eruption. If, however, this should prove rather slow in fading away a fourth pill can be given at bedtime. As a rule this is all that is indicated. In these cases the type of the disease, comparatively speaking, is so mild that there is constant danger that the patient, unless warned to the contrary, may break away from all treatment, considering himself as entirely cured, thereby laying the foundation for the development of tertiary lesions at a subsequent time.

The second type of the affection is most apt to be found developing in individuals whose general system is somewhat below par, addicted perhaps to the excessive use of alcohol and tobacco. In these patients the evolution of the cutaneous lesions is perfectly regular, but it soon becomes manifest that there is a constant tendency to the recurrence of mucous patches on the tongue, lips, and buccal mucous membrane. The original erythema is slow to disappear, and the papular form of lesion appears very early. Recurrent moist papules about the anus and scrotum are frequently noted. In this variety of syphilis I have found the tonic treatment with

mercury so strongly advised by Keyes to be the best. My method in such cases is to instruct the patient to take an extra mercury protiodide pill every other day until the teeth become tender, or the gums bleed when lightly touched. The number of pills required to attain this result is divided by two, and the result constitutes the patient's daily tonic dose of mercury. Should there appear at any time during the secondary stage a fresh outbreak of a rash or mucous patches, the patient can be placed temporarily upon his maximum dose, which is of course known.

The third type of secondary syphilis presents a much more difficult proposition than either of the others just described. In these cases there is preceding the rash a marked leucocytosis with decided loss of flesh. The appearance of the macular rash is accompanied with all the symptoms of an eruptive fever, headache, rise of temperature, and nocturnal osteocopic pains. The erythematous lesions are rapidly followed by the appearance of a widely diffused papular and papulosquamous eruption. It is useless in these cases to lose valuable time by relying solely upon internal medication. Moreover, in the majority of these cases the gastrointestinal tract is so greatly disturbed that mercury given by the mouth will not only not be assimilated, but will greatly aid to increase the gastrointestinal derangement. Mercurial inunctions constitute our only effective weapon in these cases if we wish to gain the mastery over the disease. The preparation most commonly employed is the official mercurial ointment, one drachm of it being rubbed well in on different parts of the body in succession night and morning. The patient in addition wears constantly an abdominal bandage, on the inner side of which is spread a thin layer of the ointment. Mercury vasogen is a rather recent compound which I have used quite a little, and have come to believe that it is more rapidly absorbed and therefore more effective in controlling the disease than the older blue ointment.

One great objection to mercurial inunctions is the local dermatitis often produced by their prolonged use. This can generally be avoided if the skin be thoroughly cleaned with green soap and alcohol prior to employing the inunction. Frequent warm salt water baths constitute a most important and valuable adjunct to the treatment by inunction. It is wise at times to omit the inunctions for a day or two, especially if there is noted any tenderness of the gums or soreness of the teeth. When the skin lesions have disappeared and the general condition is good, it is advisable to discontinue the inunctions and place the patient upon the internal use of mercury protiodide.

If subsequently during the secondary stage other manifestations of syphilis appear, another course of inunctions should be pursued.

These three forms are I think fairly representative of the types of secondary syphilis as encountered in practice. There is another type, the precocious malignant form, only seen as a rule among the lower classes of the community and where there are poor hygienic surroundings.

There are several preparations of mercury which it might be well to mention, all of which can be employed to great advantage alternately. The protiodide pill of Garnier and Lameureux causes less digestive disturbance I think than the American pill; to be sure this may be due to the fact that it is only one-half the quantity. Mercury and chalk, the favorite combination of Jonathan Hutchinson, is a very useful preparation to employ temporarily in cases in which the protiodide causes some diarrhea; but it has always seemed to me too attenuated a remedy to be of any real service during the active stage of the disease. Another preparation of mercury recently placed before the profession is mercurol, which I have found very useful to alternate with the protiodide; administered in one-grain doses three or four times daily it will be found very valuable in cases where the ordinary preparations of mercury cannot be assimilated.

The particular preparation of mercury to be employed during the secondary stage of syphilis is not nearly so important a matter as is the necessity of impressing upon the patient the fact that, in order to give himself the best chance of making a permanent recovery, a continuous course of treatment for eighteen months will be required. At the outset of treatment the patient's weight is the best criterion as to the action of the remedy upon the disease. If the weight does not increase, or on the other hand gradually decreases, either too much or too little mercury is

being administered, or the wrong preparation is being employed.

Too much stress cannot be laid upon the injunction that the patient should be treated as well as the disease. Cod-liver oil, iron, quinine, and whiskey have time and again proven of service, equal almost to that of mercury in the treatment of the early stages of secondary syphilis.

After one and one-half years of active mercurial treatment the patient should be placed upon the mixed treatment usually employed in the tertiary stage of the disease. If there are no tertiary lesions present in the case, the mildest form of mixed treatment is all that is necessary. This can be one-twelfth of a grain of mercury bichloride or one-twentieth of a grain of mercury biniodide combined with two to five grains of potassium iodide administered three times daily. This treatment should be kept up steadily for the space of one year. In those cases where potassium iodide deranges the digestion it can be given alone in milk, or the syrup of hydriodic acid in combination with mercury bichloride can be used. After a year of mixed treatment similar to this, a course of intermittent treatment should be instituted for about six months, at the end of which time, should no lesions appear, all treatment can be safely discontinued.

I want to reiterate my belief that a course of treatment such as just described, if faithfully carried out, will bring about a cure in seventy-five per cent of cases of syphilis occurring in individuals possessing good general health, good habits, and living under proper hygienic conditions. When tertiary lesions have once appeared I do not feel that we are ever justified in promising a permanent cure. All we can expect to do under such circumstances by treatment is to bring about the absorption of the lesions. At the same time we should insist upon a prolonged, continuous course of treatment, with the view of preventing any subsequent return.

In cases of ulcerating tubercular syphilodermata and gummata the best results can be obtained by employing potassium iodide in from ten- to twenty-grain doses three times daily, together with the use of mercurial inunctions twice daily. Personally, I am thoroughly convinced of the fact that mercury is equally as valuable a remedy in tertiary as in secondary syphilis, and that its use in connection with moderate doses of potassium iodide will be found to prove much more effective than the sole employment of enormous doses of potassium iodide.

THE ANTISEPTIC TREATMENT OF TYPHOID FEVER.

By Leighton Kesteven, M.R.C.S. Eng.,
Tismore, New South Wales, Australia.

Having been one of the earliest to direct attention to the antiseptic treatment of typhoid fever, and certainly the first to adopt eucalyptus as the specific antiseptic for that purpose, I am impelled by the various articles appearing lately in the Gazette on the antiseptic treatment of typhoid fever to again call the attention of the profession to its great value and simplicity of administration.

In the London *Practitioner* for May, 1885, I wrote an article pointing out its special action, and again in the same journal for April, 1887, I replied to certain criticisms on it which had appeared in the *Bordeaux Journal de Médecine* and some other continental journals. In 1895 I republished these in pamphlet form. In my first paper I gave the results of a series of 220 cases which worked out with a total mortality of four cases—*i.e.*, less than two per cent. Since July, 1884—nearly twenty years ago—I have not lost one case!

My treatment was summarized in *Sajous's Medical Annual*, and Burney Yeo mentions it fully in his book on the treatment of fever, and it has been reviewed in the medical journals, but I do not think it has received that attention which it merits or any full trial amongst the many other antiseptics which have been suggested. In none of the articles which have appeared in the Gazette do I see eucalyptus included, though many others are enumerated.

Peck, of Kentucky, in the Gazette, and Butler in the *Medical News*, agree with what is now a very generally accepted idea, that antiseptic treatment of typhoid fever, while it cannot lay undoubted claim to destroying the germs in the circulation, can and certainly does diminish the putrefactive and fermentative changes in the intestinal tract. I am

satisfied that the stools are practically sterilized by the antiseptic treatment and the risk of infection diminished, whilst if the antiseptic administered be at the same time a healing agent great relief is given to the symptoms caused by the local manifestation of the disease in Peyer's patches and the small intestines generally. Eucalyptus specially answers to this requirement, being one of the best healing applications we have. At the same time it possesses very distinct antipyretic powers and reduces the temperature with more permanency than quinine, from the action of which there is always a corresponding upward rebound.

The *Medical News* of September 9, 1903, summarizes its conclusions on the subject by winding up with the remark, "Of drugs none are known to be better than Murchison's dilute hydrochloric acid mixture." I can only say that prior to my experimentation with eucalyptus from 1881 to 1885 (when I first wrote on the subject) I had treated nearly all my cases with the hydrochloric acid, but though I had fair results I certainly never brought my rate of mortality to *nil,* as it has practically been since then.

Further than this, I have no hesitation in claiming for eucalyptus that it gives by itself greater relief to all the general symptoms of typhoid fever—such as tympanites, tormina, leathery-brown tongue, bloody sordes, dry skin, etc.—than any other drug which has ever been used, and reduces the hardness and rapidity of the pulse without lowering the general strength.

As an abortive I need only quote from my own records an average duration of fourteen days from the commencement of the attack to the reëstablishment of normal temperature. Twenty days is the longest I have seen a case last before recovery.

It is not a particularly unpalatable drug, and its flavor can be masked a good deal for those who dislike it by various adjuvants, such as glycerin, spirits of chloroform, etc. It can also be given in capsules, which Parke, Davis & Co. keep prepared. Ten minims is the minimum dose, which can be increased to 30 with safety. With this drug I administer stimulants very freely, giving Scotch whiskey in full quantity from the commencement of the case. For nourishment I give very concentrated fresh beef tea, chicken broth, cocoa, jellies, half-raw mutton juice, *white* of egg, Mellin's food, and milk. While diarrhea is present I omit the meat extracts.

Hemorrhage is almost an unknown occurrence with this treatment, but when it does occur I give ergot and tincture of eucalyptus rostrata (red gum). I should think that adrenalin would be very useful in such a case if severe.

The drug is cheap and handy. Any oil of eucalyptus if pure is effective, but I think that eucalyptol has been deprived of its special virtue.

CARBONATE OF CREOSOTE IN PNEUMONIA—A REVIEW.

By I. L. Van Zandt, M.D.,
Ft. Worth, Texas.

The January number of the Therapeutic Gazette contains an article "Regarding Croupous Pneumonia, especially its Treatment with Carbonate of Creosote," which prompts the following:

The writers, Drs. Scott and Montgomery, seem to be without prejudice, and though not indorsing the remedy, at the close recommend a continuance of the study of its clinical effects, with increased dosage.

With regard to statistics compiled by me (1130 cases, 56 deaths, reported by seventy-one physicians, from 22 States, Indian Territory, Ontario, Mexico, and Honduras) they say: "It is obvious . . . that the result of five, or ten, or fifteen cases in one physician's hands *can* be combined with the results of others to show most excellent percentages."

To one not seeing the table published, the remark might seem discreditable to it; but when it is recollected that I published every report sent me, even three reporting a loss of one hundred per cent, and that they came from such a wide territory, with such varied climates, it seems that the imputation of what *can* be done should not be held against the report. Had I been disposed to *make* statistics, by omitting eleven reports I could have shown sixty reporters, 999 cases, 29 deaths—a little less than three per cent. But when I sent out my circular of inquiry to almost seventy-five journals and

a very few individuals, I determined to make an honest report, and so I did.

They say: "It is a noteworthy fact that of the seventy-one contributors, twenty-six are from Texas." What use they expect their readers to make of this statement I do not know. The fact mentioned is susceptible of explanation without discredit to Texas physicians, who, I suppose, will compare not unfavorably with those of any other section.

On January 8, 1894, I observed beneficial effects in a case of pneumonia to which I had the day before given creosote for another indication. Continuing to prescribe the remedy and getting good results, I told my friends, and some of them began its use and continued with such results; so that when I read my first paper on the subject, in June, 1898, before the North Texas Medical Association, then the largest medical association in the South, I had several present who could and did indorse my teaching. This started the ball rolling. January, 1901, I read a paper before the Central Texas Association, covering another area of the State. In October of the same year, by request of the chairman of the section of practice, I furnished a paper to the Southwestern Tri-States Medical Association. These papers read before Texas audiences, and the first published only in a Texas journal, naturally brought forth more fruit in Texas than elsewhere.

The writers then give a report of sixty-seven cases treated in the Pennsylvania Hospital and at the Philadelphia Polyclinic, with ten deaths, 14.9 per cent, with abstract of fatal cases. They say, "The degree of toxemia in all cases, barring fatal ones, was mild," but do not say whether in their opinion this was attributable to the remedy or not.

In January, 1901, I wrote: "In cases which persist longer (than two or three days) there is generally an amelioration of symptoms and the coming of an appetite to which I was formerly a stranger in pneumonic cases."

Scanning their abstract of fatal cases we find No. 1 was sick eight days before the treatment began. No. 2, complicated with erysipelas, showed on autopsy bronchiectasis of left lung (right was pneumonic), acute hemorrhagic nephritis, cirrhosis of liver, splenic tumor, and edema of larynx, and this note follows: "Had his liver been normal he might have withstood the erysipelas better, though the renal condition was actively responsible for his death."

No. 3 was sick twenty-three days before admission and ought to be left out of the table. Passing by Nos. 4 and 5, we find No. 6 had pneumonia five days when an erythematous rash developed, followed by desquamation and later by nephritis, which caused his death, he having "seemed convalescent" twelve days after admission. This case should be in the list of recoveries, he, as it would seem from their report, having died from a sequel of scarlatina.

No. 9 had "left-sided hypertrophy of the heart, with mitral regurgitation." No. 10, sick twenty-two days before admission and three days after, should be left out.

Leaving out Nos. 3 and 10, and placing No. 6 on the other side, we have 65 cases, 7 deaths, a little less than 11 per cent—a result not very discreditable to the carbonate of creosote considering the material.

I will say, as I have said before, I do not believe that pneumonias from *different* infecting microörganisms are equally amenable to treatment by creosote. I have lately treated with good result a case, shown by the microscope to be streptococcic, with streptolytic serum; and I predict that the findings of the microscope will at no distant day be made the basis of treatment of pneumonia.

ON THE CLINICAL IMPORTANCE OF THE SPECIFIC GRAVITY AND ALKALINITY OF THE BLOOD.[1]

By Hubert Richardson, M.D.,
Late Pathologist to Mount Hope Retreat; Demonstrator of Physiological Chemistry at the University of Maryland.

The specific gravity of the blood plasma and its degree of alkalinity are of very great physiological importance, variations from normal occurring in many diseases, causing an array of symptoms which are not often recognized; nor is their importance realized in treatment.

[1]Read before the University of Maryland Medical Society.

By the addition of a sufficient quantity of distilled water or of water containing neutral salts up to a certain percentage, the percentage varying with different salts and with the same salts for different species of animals, the hemoglobin is dissolved from the red corpuscles into the surrounding fluid. A solution containing such a percentage of neutral salts as will keep the corpuscles unaltered in form and size without the hemoglobin being dissolved out is said to be isotonic—that is to say, it has the same osmotic pressure as the plasma; solutions containing a lower percentage of salts are hypoisotonic, and when mixed with blood dissolve the hemoglobin out of the red corpuscles, also causing them to increase in size and become irregular in shape, owing to the decreased pressure of the fluid in which they are suspended. Solutions containing a higher percentage of salts than isotonic solutions are hyperisotonic, causing the red corpuscles to shrivel up. Slight conditions alter the permeability of the walls of the red corpuscles, causing the proteids to pass out into the plasma, and chlorides and phosphates to pass into the corpuscle.

The specific gravity of the blood of men varies from 1.057 to 1.066, of women from 1.054 to 1.061. It is highest in the child at birth, averaging 1.066, the mother's averaging 1.050; the blood of the fetus is also higher than that of the mother. The specific gravity of the arterial and venous blood is the same; it falls after hemorrhage owing to the blood taking up fluid from the tissues; the fall is followed by a rise to above normal in about six hours, returning to normal after twelve hours.

The method of estimating the specific gravity of the blood clinically is simple and of advantage, as its variations are roughly a gauge for the amount of hemoglobin present. Solutions of glycerin and water are made of definite specific gravity between 1.030 and 1.080; a drop of blood is allowed to fall into the solution from a fine pipette, and the fluid in which the drop neither rises nor falls is of the same specific gravity as the blood.

Reaction.—As has been stated the blood is of alkaline reaction, but as yet no simple method has been devised which will give results accurate enough for clinical work. It has been estimated by complicated methods to be equal to 0.2 gramme of NaOH per 100 Cc.; the alkalinity is lowest in the morning, increasing to about midday, and again falling in the evening; it rises during digestion, is diminished by muscular exercise, especially on a diet containing little proteid, but on a diet rich in proteids the variations are slight; consequently herbivora are more easily poisoned by acids than carnivora. The cause of this is that under a proteid diet more ammonia is formed in the system, which combines with and neutralizes the acids.

The alkalinity of the blood is due to the carbonate and phosphate of soda present in the plasma; in the corpuscles there are organic substances of a weak basic nature. Saturation of the blood with CO_2 causes the serum to become more alkaline and the corpuscles less alkaline.

Blood, although alkaline, contains acid sodium phosphate NaH_2PO_4 and acid sodium carbonate $NaHCO_3$, which have the power both of fixing bases and of turning other acids out of combination. In this sense the blood has a certain acidity which in normal venous blood may equal 0.162 to 0.232 NaOH per 100 Cc. blood and may be increased in diabetic coma to 0.347, in fever to 0.272.

Therapeutically it is of importance that both the specific gravity and the alkalinity of the blood should be kept at normal, and in many pathologic conditions there are deviations from the normal which produce more or less marked symptoms; in fact anemia of bulk and hydremia, the result of the increase and decrease of the specific gravity, and acidosis, the result of decreased alkalinity, are conditions producing a complicated array of symptoms which might almost be classed as definite diseases.

Under ordinary conditions, when there is a greater elimination of water from the system than there is taken in, the tissues give up their water to the blood-stream in the attempt to keep the specific gravity at the normal, but pathologic conditions arise where the tissues are no longer able to supply the required water, the elimination depending probably on blood-pressure, continuing until the bulk of blood in circulation is materially diminished, and there is therefore a decreased supply to and consequent decreased ac-

tivity of all the organs of the body. The elimination of water from the system during the twenty-four hours is considerable:

By the lungs at rest..	1000 Cc.	At work.....	2279 Cc.
By the urine at rest..	1000 Cc.	At work.....	1000 Cc.
By the feces about...	100 Cc.	At work.....	100 Cc.
By the sweat	500 Cc.	At work, variable to	2000 or 3000 Cc.

A patient at rest in bed will therefore eliminate about 3000 cubic centimeters in twenty-four hours.

The patient receives water with his food and drink; in the former as cooked the amount is large, certainly over 75 per cent. The total amount of water in the body is about 75 per cent of its total weight, and the blood is about 6 per cent of the total body weight. If a patient takes too little fluid the blood draws upon the tissues for the water required, the total body weight decreasing. In training a man "to weight," as is the custom in some athletic sports, one of the first processes is to limit the amount of fluid taken and also to eliminate as much as possible by artificial sweating. One reason, and in many cases the principal reason, why a patient loses weight is because he eliminates more water than he takes in; as long as the tissues can supply to the blood-stream the quantity lost no anemia of bulk results, but there comes a point where the tissues can spare no more fluid, the blood becomes concentrated, and the bulk of blood in circulation diminishes to a greater or less extent. Herein lies the benefit obtained by the injection of physiological normal salt solution, or better still a solution containing the inorganic salts in the same proportions as they exist in the plasma. When possible the solution can be given by the mouth at the rate of about 250 cubic centimeters every two or three hours.

No method has been devised whereby the conditions of anemia of bulk can be definitely established. The diagnosis, however, can be made by collecting the total quantity of urine passed in the twenty-four hours, and should it be less than 500 cubic centimeters administration of artificial serum is indicated.

Acidosis or decreased alkalinity of the blood can be brought about either by the administration of acids or from their formation in the system, or by the decreased intake of alkalies.

Under normal conditions the alkalinity of the blood is maintained by the ammonia formed as an intermediary product in the formation of urea, which combines with and neutralizes any excess of acids formed and is eliminated in the urine.

The herbivora are extremely susceptible to the action of acids, owing to the small amount of proteid they take and consequent small formation of ammonia available to neutralize the acid. The symptoms which follow the injection of acid in these animals are: the respiration at first becomes more rapid, then slower toward the end of life, the pulse-rate and the blood-pressure first increase and then decrease, the animals become ataxic, fall into convulsions, and gradually die in coma. In carnivora and omnivora three or more times as much acid can be administered without any effect, the ammonia produced from the proteid diet neutralizing it, but if they be fed upon an alkali-free diet so as only to produce a slight loss of alkali, morbid derangement of the nervous system and disturbances of assimilation supervene.

It is evident therefore that a reduced alkalinity of the blood is of great clinical importance; unfortunately no direct method has been devised for the clinical estimation of the alkalinity due to the limitation of indicators, to the small quantity obtainable for clinical examination, and from the fact that the acid used for titration combines with proteid, consequently giving too high results. In the urine, however, we have an indicator as to the conditions of the blood.

The acidity of the urine is largely due to disodium phosphate, Na_2HPO_4, being increased. If there is an excess of acid in the blood-stream it combines with the sodium present in the plasma, increasing the amount of monosodium phosphate. If the total acidity of the 24-hour urine be estimated (the total 24-hour quantity must always be used, as under normal conditions the acidity of the urine varies at different times of the day), and be found to equal 3.0 of oxalic acid or more, it is strong evidence that the alkalinity of the blood is decreased.

As the excess of acids combines with the ammonia, preventing its formation into urea, an excess of ammonia in the 24-hour urine is an indication of the reduced alkalinity of the blood. Normally the amount of nitrogen eliminated as am-

monia is about four per cent of the total nitrogen; any excess points to the condition of acidosis. Free acid is never eliminated in the urine.

The sources of the various acids which may produce acidosis are many and are but partially understood.

In the process of normal metabolism a number of acids are produced as intermediary products, the greater proportion undergoing further decomposition, only small quantities being eliminated by the urine as such, but under certain conditions their further decomposition is arrested when they combine with the alkalies of the blood, producing acidosis. The largest portion of the carbon dioxide is normally eliminated by the lungs, with but little in the urine. In acidosis the elimination by the lungs is increased and the elimination of the kidneys is decreased. Under normal conditions the elimination of carbon is about equal to that of nitrogen, in acidosis the $\frac{C}{N}$ factor may fall as low as 0.7. Uric acid, usually decomposed into urea, may exist in the blood in excessive quantities. Phosphoric and sulphuric acids also are at times formed in excess, as when there is a rapid breaking down of the cells. Sulphuric acid is formed in the intestine in the decomposition of proteid; a portion is eliminated by the kidneys in combination with alkali. A portion combines with certain organic ethers, forming ethereal sulphates, which are also eliminated by the kidneys.

In the production of hydrochloric acid in the stomach alkali is liberated so that it should not produce acidosis, but I have found that in patients with hyperchlorhydria there is a marked reduction in the quantity of alkali eliminated by the urine—in fact I have for some years used the reduction in the proportion of sodium chloride to nitrogen to diagnose hyperchlorhydria of the stomach, and find that it rarely fails. It would seem that in hyperchlorhydria there may be a condition of acidosis.

Organic acids formed in the stomach and intestines produce a number of symptoms, mostly nervous; it is evident if they remained in the intestinal tract and were eliminated by the feces they would produce no symptoms. They are acetic, butyric, proprionic, lactic, succinic, valerianic, caprionic, and perhaps formic; the most common being lactic and butyric, the former being capable of conversion into the latter. The total quantity of these acids is small, but they can produce acidosis, and they can be detected in the urine in considerable amounts.

Of the other acids formed in metabolism, sarcolactic, carbamic, oxalic, and aromatic acids all may produce symptoms.

The acetone bodies, viz., acetone, diacetic acid, *b*-oxybutyric acid, are the most pathologic in their effects.

Acetonuria is a subdivision of acidosis, due to a peculiar but little understood inhibition of oxidative processes, the excretion of *b*-oxybutyric acid representing the most advanced degree of oxidative perversion, acetone the least—in fact acetone is present in small quantities in normal urine.

Oxybutyric acid is an oxyacid with a secondary alcohol group which is readily converted into its keto diacetic acid by oxidation. Diacetic acid is acetone in which one hydrogen atom is substituted by the carboxyl group.

$$\underset{\text{b-oxybutyric acid.}}{CH_3{-}CHOH{-}CH_2{-}COOH} + O = \underset{\text{Diacetic acid.}}{(CH_3CO)CH_2COOH} + H_2O.$$

$$\underset{\text{Diacetic acid.}}{(CH_3CO)CH_2COOH} = CO(CH_3)_2 + CO_2.$$
$$\text{Acetone.}$$

If the *b*-oxybutyric acid be given to healthy man it is completely destroyed, only a slight increase of the acetone in the urine being observed.

If the *b*-oxybutyric acid be given to diabetics, diacetic acid appears in the urine as well as a marked increase in the acetone, while the reverse, viz., the appearance of diacetic acid or oxybutyric acid in the urine after the administration of acetone, has never been observed, the only urinary change being the increase of acetone. If animals poisoned by carbon monoxide are injected with oxybutyric acid, a portion of the acid is eliminated as such, with some diacetic acid and acetone.

This proves that the elimination is due to want of oxygen, and that the three substances owe their origin to some common perversion of oxidation, and that at least one of the factors in diabetes is a perversion of the oxidation processes.

The appearance of acetone in excess or diacetic acid in the urine shows that either there is a deficient supply of oxygen or

that there is a perversion in the oxidative processes.

It has further been observed that lessened carbohydrate feeding is a cause of acetonuria, and that starvation also increases the acetone eliminated. Seven days' fasting increases the amount of acetone in the urine forty times; after more prolonged fasting diacetic acid and oxybutyric acid also appear in the urine. When diabetics are put on a strict meat and fat diet the acetone is increased, and diacetic acid may also appear. Even healthy persons on a strict meat and fat diet will eliminate increased amounts of acetone.

Patients suffering from inanition will not eliminate increased quantities of acetone, provided they ingest 80 grammes of carbohydrates a day.

The origin of acetone in the system is as yet unknown, the most generally accepted theory being that there is a synthesis from fragments of the proteid or fat molecules containing little carbon, which under normal conditions undergo further oxidation; but if the oxidation processes are imperfect oxybutyric acid is formed, provided there is an insufficient ingestion of carbohydrates, and therefore the carbohydrates in some way, not at present understood, assist oxidation.

Besides diabetes there are a number of other conditions in which acetone appears in the urine. Phloridzin and piqûre glycosuria are accompanied by an increased elimination of acetone, but here the diminished utilization of the carbohydrates produced by the poison and by the operation is clear.

Acetonuria is often observed in typhoid fever, scarlatina, pulmonary tuberculosis, and occasionally even oxybutyric acid may appear. The quantity of acetone appears to increase with the temperature, but here again it is perfectly certain that it is the result of diminished oxidation and absence of carbohydrate assimilation, or carbohydrate starvation resulting from improper diet. If the quantity of carbohydrate ingested is increased the acetone will be reduced.

Carcinomatous acetonuria has often been observed, and cancer patients often die in a condition resembling diabetic coma; acetone and diacetic acid in the urine are undoubtedly a bad prognostic sign, but here again it is evidently due to inanition and consequent lack of carbohydrate assimilation.

In gastrointestinal diseases acetonuria is not uncommon and is due to the diarrhea or vomiting, causing carbohydrate starvation.

A convulsive condition has been described as epilepsia acetonica, in which large quantities of acetone were eliminated after the seizure. In some cases of epilepsy that I have examined I found a slight excess of acetone, but there is a peculiar condition of the epileptic stomach digestion of the carbohydrates which I have never been able to explain. In a certain percentage of cases the bread in the stomach contents is rolled up into lumps of the consistency of putty and apparently undigested; there is no or very little sugar in the stomach contents, and soluble starch is often entirely absent. This condition could be accounted for if the saliva were free from ptyalin, or if there was a very marked hyperchlorhydria, but the saliva converted starch normally and the free HCl was below normal.

There can be no doubt that the spasm of epilepsy and probably all convulsive conditions are associated with an acidosis. In my investigations at Mount Hope I found in 1897 that there was an increase of ammonia in the urine before and after a spasm, and it is possible that in certain cases the acid may belong to the acetone group.

Acetonuria in puerperal eclampsia and eclampsia of pregnancy, as well as when the acetonuria is due to a dead fetus, is probably due to a deficient oxidation; in the puerperal and pregnancy eclampsia thyroid insufficiency is probably a cause, reducing the oxidation.

The clinical significance of acetonuria is carbohydrate starvation, and the estimation of the total acetone in the twenty-four hours, or the presence of diacetic acid, a test so easily made (by the addition of ferric chloride in excess to the urine, which gives a burgundy red color if diacetic be present), is of value in showing that the diet is insufficient in carbohydrates. As each patient has his own standard of requirements for carbohydrates, it is necessary to experiment till the quantity necessary is reached. In the starvation and freezing treatment of

typhoid fever, carbohydrate starvation is the rule, the minimum amount of carbohydrate necessary to prevent acetonuria being 80 grammes per diem. It requires the ingestion of from two to three liters of milk per diem to reach that amount. The quantity of carbohydrate can be increased by adding milk-sugar to the milk if it is thought advisable to exclude all starches.

The examination of the urine for acetone and diacetic acid is very necessary in all cases of inanition, as to be able to gauge the amount of carbohydrate required to keep up the oxidation processes, which if not complete necessarily retard or prevent the recovery of the patient.

The treatment of anemia of bulk consists in the administration of about four pints of water per diem, containing sodium chloride gr. vj, sodium sulphate gr. ij, sodium phosphate gr. ½, sodium carbonate gr. ½, potassium sulphate gr. j, to the pint. If the patient is unable to take this quantity of fluid, a high enema of a pint or two of the above solution administered night and morning will give nearly as good results. In all cases where rectal feeding has to be resorted to enemata of the above solution should be given daily; in the majority of cases where rectal feeding fails it is because enough fluid is not given. It is remarkable the rapidity with which such a solution as the above will be absorbed from the intestine, and the improvement in the condition of the patient in a few hours, in such cases as the vomiting of alcoholism and pregnancy, in which anemia of bulk is nearly always present.

Acidosis is naturally treated by the administration of alkalies in varying amounts, depending on the cause and the degree of the decrease of alkalinity. In diabetic coma enormous doses have been given, apparently prolonging life. Magnesium oxide and sodium bicarbonate in doses of ten grains each are usually effective, but on occasion much larger doses can be given with benefit, the time of administration, whether before or after meals, depending upon the condition of the stomach secretions; no matter what the dose it should always be administered in at least a half-pint of water, or even more when the quantity is large.

A NEW MODIFICATION OF OPERATIVE PROCEDURE FOR RETROFLEXION OF THE UTERUS.

By E. E. Montgomery, M.D.,
Professor of Gynecology in the Jefferson Medical College.

It is with considerable hesitancy that I attempt to present an operation which is only a modification of the procedures of other men, but which seems to me to come nearer securing the desired result than any other method. I need not recount the various operatives procedures, beginning with the Alexander operation, which have been done upon the round ligament; operations connected with the names of Alquie, Alexander, Adams, Wylie, Dudley, Mann, Ries, Webster, Baldy, Gilliam, Ferguson, Simpson, and George H. Noble. The operation upon the external end of the round ligament has been variously modified by Edebohls, Newman, Franklin Martin, Goldspohn, and others, with a view of extending the radius of its influence. The true Alexander operation must necessarily have a very limited capacity, as it is only applicable to those cases in which the uterus is freely movable; in other words, to those in which any operation is least indicated. The modifications of Goldspohn and others with a view of enlarging its influence are ineffective, as they propose to tear up structures without being able to determine their condition and effect, beyond that revealed by the sense of touch. No one has a right to break up adhesions without being able to see the condition of the structures involved, and properly treating such pathological conditions as may be present. The various operations which contemplate doubling up the round ligament or shortening it from its uterine end are utilizing the best part of the ligament and leaving its weakest portion unaffected, thus increasing the danger of the redevelopment of the lesion. The inefficiency of the Alexander operation in the worst cases led to these various procedures, and also to the operation known as ventrofixation or ventrosuspension.

This latter operation is one which is very readily performed through a single incision, affords excellent opportunity for examining and treating diseased condi-

tions of the pelvis, and gives a fair measure of assurance of the retention of the uterus forward. The suspension operation is done, of course, with a view to the union of the peritoneal surfaces of the uterus and peritoneum by a band which will stretch out and give mobility to the uterus, and yet be sufficiently durable to maintain the small organ in its anterior position. It must be apparent, however, to every one that such a condition is not an imitation of the normal one. It is adding an additional band of adhesion within the peritoneal cavity which must be a source of danger during the remainder of the life of the individual. In the procreating woman we have no positive assurance that the band of adhesion thus created will not be a source of distress during the progress of her gestation and danger at its completion. I have in one case lost a patient within twenty-four hours after this operation from a large portion of the intestine slipping below the fixed uterus and its circulation becoming strangulated. Other such cases have been recorded, and more will be, in which patients have in later years suffered from intestinal obstruction as a result of the artificial bands.

Of the later operations, that devised by Gilliam and Ferguson seemed to obviate this difficulty. It consisted in making a median incision, the treatment of abnormal conditions within the abdomen, the drawing of a loop of the round ligament through the abdominal wall into or external to the body of the rectus, which was secured by sutures. The ligament thus drawn through on either side would increase the difficulty we have already mentioned, in the fact that two bands would transfix the abdomen. To avoid this danger, they gathered together the peritoneum external to this band by a suture, which was tied, thus preventing any possibility of the intestine slipping down externally to the point at which the band transfixed the peritoneum.

Recently Simpson, of Pittsburg, devised an operation in which after the usual median abdominal incision he transfixed about one-half the thickness of the round ligament with a needle threaded with silk. Both ends of this loop were passed through the eye of a Deschamps

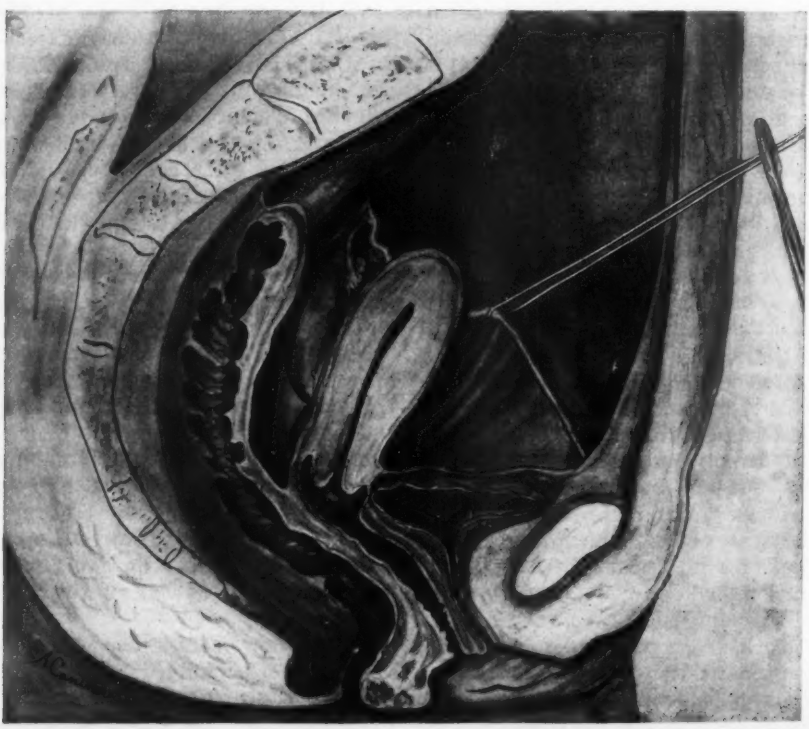

FIG. 1.—A temporary ligature about the round ligament.

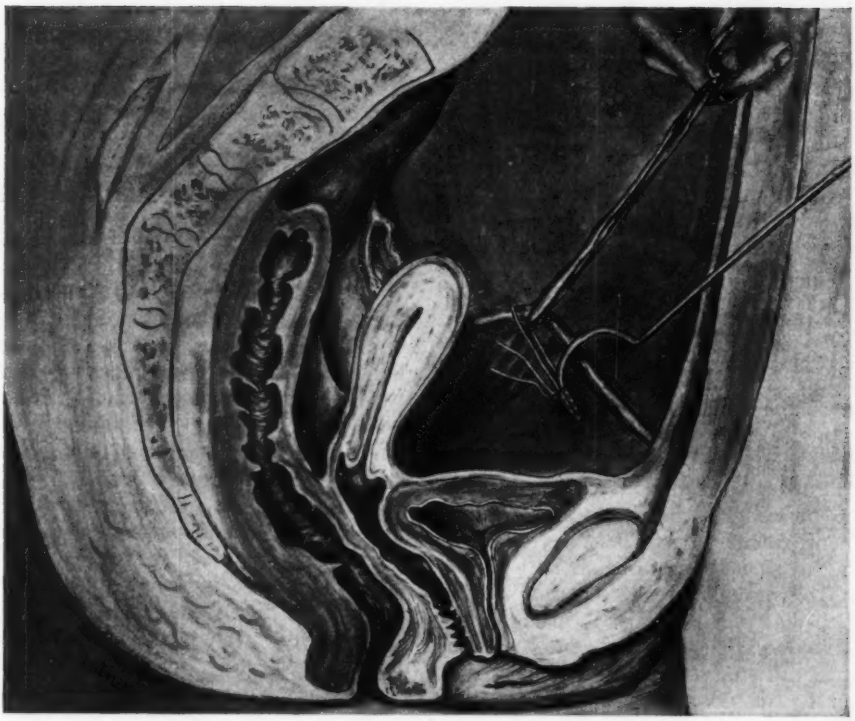

FIG. 2.—Ligature threaded in carrier, passed beneath an opening in the anterior fold of the broad ligament, while the round ligament is held tense with hemostatic forceps.

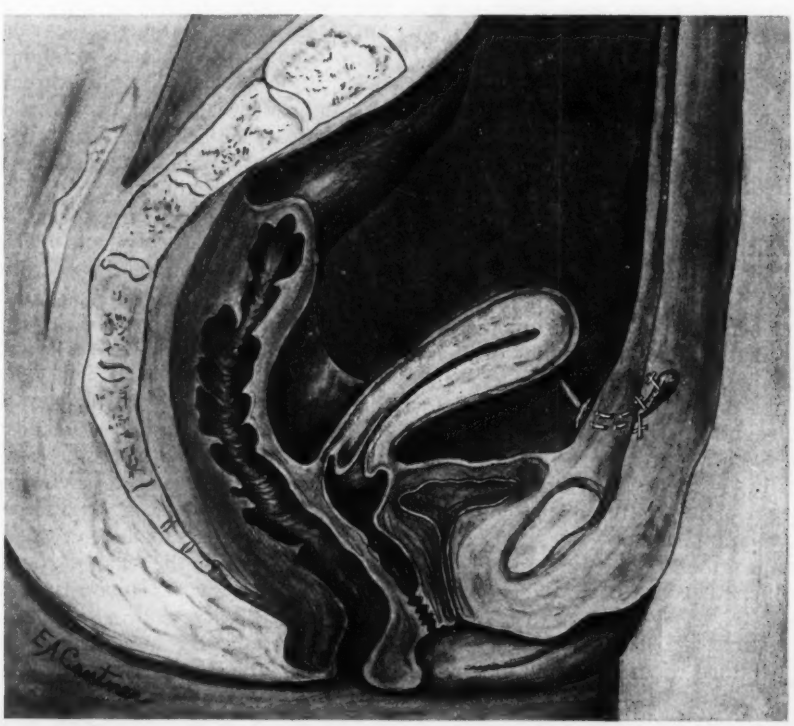

FIG. 3.—A loop of round ligament carried behind the peritoneum and drawn through the abdominal wall; fastened by sutures.

needle. A small opening was then made in the peritoneum of the broad ligament, through which the threaded instrument was carried beneath the peritoneum of the broad ligament beyond its reflection upon the parietal wall, where it was again brought out into the peritoneal cavity. One end of the suture was threaded into a curved needle and carried through a part of the muscle wall, after which the two ends of the loop were tied.

In the operation I propose I have opened the abdomen in the median line, picked up a loop of the round ligament about one and one-half inches from the angle of the uterus, passing the ligature beneath the entire ligament. Both ends of this ligature are carried by a Deschamps needle through an opening in the peritoneum anterior to the round ligament, to the parietal surface, and beneath the parietal peritoneum to a point about the outer margin of the rectus muscle, where it is carried through the abdominal wall. The two ends of the ligature drawn taut, the opening is enlarged by introducing the point of the scissors and separating them so that the ligament is thus easily brought up. After a similar procedure upon the opposite ligament, the projecting loops are fastened by sutures to the aponeurosis, the final suture being introduced in such a way as to decrease the size of the opening through which the loop has been brought. This operation holds the womb forward, affording it mobility, introduces no adhesions or extraneous material within the abdominal cavity, yet affords structures which will undergo hypertrophy and involution should the woman become pregnant. The introduction of the round ligament beneath the peritoneum requires no especial skill, as with the ordinary Deschamps needle with a slight curve, a long right-angled piece, the suture holding the round ligament is readily carried.

This operative procedure is also of advantage in cases in which there is a tendency to prolapse of the ovary and tube, as the relation of the retracted broad ligament to these organs forms a shelf upon which they are more likely to rest. It also is of service in cases of femoral hernia in that it decreases the directness of the pressure of the intestine upon the femoral opening. I have done this operation on quite a number of patients. It is too soon, however, to say anything as to the durability of the procedure beyond what would be apparent from the mechanical aspect of the operation.

ANTISTREPTOCOCCIC SERUM IN THE TREATMENT OF SMALLPOX.

A. C. Smith in the *Medical Record* of April 2, 1904, details his results obtained by this method of treatment. At the end of fourteen days the body surface was clean and smooth, covered with the superficial scars, but no pitting. The eruption was pronounced, and where the garter encircled the leg the vesicle extended entirely around.

The other medicinal treatment used was only mild laxatives of calomel and sodium bicarbonate with sponge baths of 1:4000 bichloride mercury solution, with hot bath of the same when desquamation was ripe. He used no masks nor emollient protectors, yet had no pitting, nor did they have itching to any marked degree. In these cases there was none of the general debility that followed the disease in former cases in which the treatment was by the usual drugs and antiseptic washes, though the same has been successful, as there was only one death in a series of eighty-three cases, but in most cases tedious convalescence and impaired health followed recovery. Thus by the serum treatment we have a shortening of the duration of the disease, absence of the secondary fever, lack of absorption of septic products by prevention of pus formation, no pitting, no marked debility, less suffering, and much less danger of lung and kidney involvement, with a much more rapid convalescence.

In conclusion, the writer states it is to be regretted that the profession is so slow to give the patients the benefit of these life- and suffering-saving means that science has placed at its disposal. One great mistake made in the administration of any of the serums is too long delay and insufficient quantity used. It must be used early and in sufficient quantities to command a complete neutralization of the toxins it has to counteract.

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF HEMOPTYSIS.

Hemoptysis, or blood-spitting, is a condition which possesses very great interest not only for the medical man but for the laity as well. It is a symptom which always causes great alarm to the patient and to his friends, and is one which does not yield readily to treatment. Most of the measures which have been introduced in the past for the control of the bleeding and which have been thought to be advantageous have probably exercised but little effect, for it is difficult to conceive how hemorrhage from a blood-vessel of any size can be materially influenced by the internal administration of drugs. As we have stated before in these columns, it would seem probable that in the use of many of the remedies which have quite a reputation for this condition, the hemorrhage has ceased by coincidence rather than by any direct effect of the remedy. In instances where the blood comes from a capillary network and the flow is not free, the internal use of vaso-constrictors may be advantageous, but where a main vessel is eroded, in all probability they tend to increase hemorrhage by raising arterial tension.

With these ideas in mind we have read with a good deal of interest a paper by Mr. Milton in the *British Medical Journal* of March 19, which embodies his views developed by acting as medical superintendent of a sanatorium in Devon, England. He divides the cases of hemoptysis into three classes, namely, those occurring early in the disease as the first initial sign of pulmonary tuberculosis, and before consolidation can be demonstrated by physical signs, the hemorrhage taking place while the patient may seem in perfect health. The treatment which he advises under these circumstances is perfect rest until the hemorrhage ceases, followed by the gentlest form of exercise for a considerable period of time. He believes that gentle exercise causes the distribution of blood to other portions of the body than the lungs, and so actually diminishes the tendency to hemorrhage. This method has the additional advantage that the patient is not depressed by being confined to his bed. If, however, fever is present, then rest in bed is absolutely necessary. The amount of food should be moderate and every measure taken to regulate the system, so that the febrile process is brought to a conclusion as speedily as possible. In those instances wherein the amount of blood lost is large and the consequent weakening is great, rest in bed with a liberal diet is of course necessary. It is also important that the patient shall be cheered by the physician, who can assure him with perfect truth that patients very rarely die as the direct result of pulmonary hemorrhage.

The treatment for cases in which the physical signs of disease are better developed is practically identical.

In the third class of cases, when a cavity is present, the condition is more grave because there is an associated septic tubercular infection in the lungs, and the lesion which produces the hemorrhage is more wide-spread. Under these circumstances he strongly recommends that we diminish the activity of the heart and the respiratory activity to the lowest possible point, administering at the same time remedies which tend to lower blood-

pressure. Quiet for the heart and the nervous system can be obtained by absolute rest and seclusion, by the application of a hot-water bottle to the feet. Morphine may be given in the dose of ¼ grain, either hypodermically or by the mouth, and enough of it should be used to relieve the patient's anxiety, quiet his nervousness, diminish respiratory activity, and decrease the number of heart-beats per minute. A piece of ice placed in the mouth is also refreshing, and perhaps exercises a quieting influence. Mr. Milton doubts the advisability of applying an ice-bag to any portion of the chest. After the hemorrhage is controlled he believes that the diet should at first be light and not stimulating, consisting of raw eggs and beef, and raw beef sandwiches, gradually increased in quantity until finally a regular diet can be instituted. Alcohol is not to be used if it can be avoided. If there is evidence that the bronchial tubes are blocked by blood-clots, morphine must not be given, as it is essential that the patient empty the bronchial tubes by coughing.

Closely allied to these cases may be included a fourth class, in which the patient may be still fairly plethoric yet have a weak spot in a blood-vessel in his lung. In such instances Milton believes that blood-pressure should be lowered by full doses of magnesium sulphate, that the bowels should be moved daily by one of the saline waters, that the diet should be moderate and not stimulating, and that doses of salicylate of sodium, amounting to 30 grains a day, should be given. The exact reason for the administration of this latter drug is not clear.

Doubtless the readers of the GAZETTE, after perusing the opinions of Mr. Milton, will come to the conclusion that after all he has nothing very new or radical to suggest in the treatment of this alarming condition. We have mentioned his views because we think that they are moderate and to a large extent correct. It is well for us to recognize that we have certain limitations in therapeutics, and still more important that we remember that in endeavoring to do good we must not administer drugs which can possibly do harm. Masterly inactivity is sometimes better for the patient and physician than meddlesome therapeutics.

THE EFFECT ON NEPHRITIS OF DECAPSULATION OF THE KIDNEY.

In the THERAPEUTIC GAZETTE for January, 1904, we discussed this method of treating chronic renal disease, which was first advanced by Dr. Edebohls, of New York, and which has since been followed by a number of operators in other cities, here and in Europe. In that editorial we took the ground that the operation was not based upon clear conceptions of the physiology or pathology of the kidney function, and we quoted a statistical article compiled by Dr. Ramon Guiteras, from which he decided that chronic nephritis should not be operated upon until medical treatment had proved of no avail. Further, that operative procedure limited to one kidney was safer than that applied to both kidneys, and finally that cases which suffered from anasarca should not be operated upon.

Attention is once more called to this subject by an experimental research carried out by Dr. Hall, of Manchester, and Dr. Herheimer, of Wiesbaden, which is recorded in the *British Medical Journal* of April 9, 1904. After reminding us that Edebohls first suggested decapsulation of the kidney for chronic nephritis for the reason that improvement in some such cases followed stripping of the capsule for the fixation of a movable kidney, they speak in terms of commendation of the suggestion originally made by Mr. Reginald Harrison, namely, that puncturing the kidney capsule should be resorted to for the purpose of relieving intrarenal pressure.

The first step in their research was to determine the effect of decapsulation of the kidney in healthy animals. They quote a series of experiments made by Claude, Alberan, and others which are in accordance with their own results, to wit: that when the capsule of a kidney is removed it rapidly reforms, and at the end of ten or twenty days is represented by a fibrous covering thicker than the original capsule. Again, none of these investigators were able to detect any vascular anastomoses between the cortical and perirenal blood-vessels in dogs or rabbits, although it is true that a slightly increased vascularity of the kidney may temporarily be present. It is evident,

therefore, that decapsulation of the kidney in animals, at least, does not permanently relieve these organs from pressure. They then produced nephritis by experimental measures, endeavoring to use substances for the production of this condition which would be qualified to produce lesions as closely allied to those found in ordinary nephritis in human beings as possible. After producing such a nephritis, they proceeded to decapsulate the kidney, and they found that in these cases also the removal of the capsule was speedily followed by its regeneration, so that so short a time as eight to fourteen days after the operation the kidney was covered by a thick, strong connective tissue capsule. While they are perfectly free to admit that artificial nephritis in animals cannot be too closely compared with nephritis in human beings, the results of their research are certainly most interesting and practical in their bearing.

They conclude that decapsulation does not offer any advantages; that there exists no anatomical basis for the operation in acute degenerative nephritis; neither do they think that in chronic nephritis any better results will be obtained. On the contrary, they believe that the damage done to the surface of the kidney in the removal of the capsule would rather tend to accelerate the interstitial inflammation.

If, then, it is practically decided that removal of the capsule does not produce beneficial results, either by relieving tension or providing the kidney with a new blood-supply, how else can it possibly be advantageous? It has been thought by some that the increased circulation in the kidney which is supposed to exist after this operation depended upon some action of the sympathetic ganglia. We know so little in regard to the functions of these ganglia that any such considerations must be largely hypothetical and suppositious. But if it be true that the operation acts in this manner, then as Hall and Herheimer well point out, there is reason to believe that puncture of the kidney, or a long transverse incision of its capsule, ought to produce equally good results, and expose the patient to a less serious operation.

In conclusion they express the view that while some American and French surgeons regard the operation with favor, Israel, Nicolayson, and others have already abandoned it in chronic conditions, and we can hardly conceive that so grave an operation would be justified in acute nephritis. Finally, they quote a research carried out by Boncz-Osmolowsky, who found that in several instances after decapsulation of the kidneys the leucocytes and connective tissue were increased between the tubules, and the cells of the superficial tubules showed granular changes in their protoplasm. Later on the superficial tubules and glomeruli were slightly compressed by the connective tissue elements, and there was atrophy of the renal cells. This observer also failed to recognize any new formation between the blood-vessels of the capsule of the kidney and the renal vessels in the newly-formed capsule.

ANOTHER NOTE AS TO THE USE OF TUBERCULIN AS A DIAGNOSTIC AGENT.

In the issue of the THERAPEUTIC GAZETTE for November, 1901, and again in the issue for May, 1902, we discussed this very important matter, and as a result received several communications, some of which indorsed our rather conservative view as to the value of this agent, while others expressed the belief that we were sadly mistaken in not regarding tuberculin with more enthusiasm as a diagnostic agent; and in two instances at least physicians sent us contributions to our original columns in which they strongly advocated not only the use of tuberculin as a diagnostic agent, but also its employment for therapeutic purposes. In both editorials to which we have referred we fully recognized the importance of determining at the earliest possible moment that a patient was suffering from pulmonary tuberculosis. It is a universally recognized fact that the earlier the tubercular invasion is recognized the greater are the opportunities for its arrest and cure, and there can be no doubt that an agent which would certainly determine the question as to the presence of tubercular infection, and which would be harmless to the patient, would prove of infinite value to the medical profession. On the other hand, in

these same editorial notes we pointed out the fact that tuberculin was by no means a diagnostic agent which would give us certain results, but on the contrary it was prone, in a large number of cases, to mislead the physician, either by failing to give a reaction when the patient was really tubercular, or by giving a reaction when no tuberculosis was present, probably because syphilis or some other condition affected the result. Again, it has seemed to us that given a patient with sufficiently definite symptoms to raise a suspicion of tubercular infection, it is safer for the physician to treat that patient as if he were positive that tuberculosis was present, since the patch of impaired resonance in the lung, or the area in which roughened breathing is present, if not due to tubercular infection, is certainly pathological, and equally certainly affords a site in which the tubercle bacillus may rapidly multiply should the patient be exposed to infection. In such a patient it matters little, so far as climatic cure is concerned, whether the condition be actually tubercular or so favorable to tuberculosis that the patient's life is in jeopardy.

Finally, it may be remembered that we took the ground that in many instances it is questionable whether we are justified in causing a so-called reaction by the injection of tuberculin, and whether the patient whose vitality is already impaired should be made more ill, even temporarily, by the production of a chill, fever, and sweat.

In the two or three years which have elapsed since these editorials were written we have seen no reason to change our views, although medical journals in this country and abroad have published a very considerable number of cases in which the use of tuberculin as a diagnostic agent seemed to yield excellent results. On the other hand, other articles have been published in which it has been proved beyond all doubt that the tuberculin has misled the physician, and therefore we have read with much interest a letter published in the *Boston Medical and Surgical Journal* of March 17, 1904, written by Dr. Vincent Y. Bowditch, of Boston, who as most of our readers know is perhaps the most eminent authority on pulmonary diseases in the New England States. This letter is written in reply to one sent to the same journal by Dr. Lord, who is an ardent believer in the use of tuberculin as a means of diagnosis, although even Dr. Lord admits that the only reliable proof of pulmonary tuberculosis is the presence of tubercle bacilli in the sputum. We cannot help feeling that the attitude taken by Dr. Bowditch in regard to this matter is one which may well be followed by the majority of the profession. On the one hand he does not condemn the employment of tuberculin, yet on the other hand he does not believe in its free use, and is strongly opposed to the claim made that a patient has a true reaction unless the condition of the patient has been most carefully studied before and after the injection is given. He says that after having used tuberculin and given it up, he was persuaded to return to it by those in whom he had faith; that he tested it in patients who were under the most careful observation, and he regrets to state that he has frequently found himself in consequence of its use more in doubt than before, has discharged patients who have failed to react to the maximum dose, who later developed undoubtedly pulmonary tuberculosis, and he cites one instance of a patient who received 10 milligrammes of tuberculin without having any reaction, although a few days before tubercle bacilli were found in his sputum. Again, he finds that many patients refuse flatly to take the test.

It seems to us also that Dr. Bowditch strikes a true note when he says that he believes we are now apt to often lay stress upon laboratory evidence at the expense of clinical experience, and by so doing are not infrequently led astray. Again, whether tuberculin be used or not, and whether the patient reacts or not, he advises that we adhere to the old maxim taught him, and others, in his early career, namely: "If you find any change in the respiration or the percussion note in one or the other apex of the lung beyond the normal variation which usually exists in the right apex, if you hear a single râle in the same position, especially if accompanied by malaise, loss of flesh, slight fever, with or without cough and expectoration, watch your patient, for he is in danger." The physician who does

this will usually recognize the presence of tubercular infection early enough to do all that is necessary for his patient, even if tuberculin is not used to confirm his suspicions of infection.

THE DOSE, PURITY, AND ACTIVITY OF DRUGS.

It is not the intention of this editorial to speak once more of the necessity of the physician being careful to employ only such pharmaceutical preparations as he is sure are capable of producing a full therapeutic effect. As we have stated in the past, it is remarkable that physicians are so frequently content to use remedies of uncertain value in treating cases of disease, since so much depends both for the life of the patient and their own reputation upon the activity of their remedies. In the *Lancet* of April 9, 1904, attention is called, in an editorial, to the fact that drugs may not only give disappointing results if they are inactive, but that some of the medicinal substances derived from the mineral kingdom may be contaminated by other substances in sufficient quantity to produce undesirable effects. Years ago it was supposed that the irritation of the gastrointestinal tract which sometimes followed the use of very large doses of bismuth was due to the bismuth itself, but it was soon found out that these untoward effects were in reality dependent upon the fact that the bismuth was contaminated with arsenic. By the *Lancet* we are informed that a number of specimens of cream of tartar dispensed as medicine in England have been found to be contaminated with lead in the proportion of three-quarters of a grain to the pound, while another sample contained one-tenth of a grain of arsenic to the pound. In each instance a court held that the purveyor of such a contaminated substance was liable to punishment. In some instances these impurities probably account for what is supposed to be an idiosyncrasy on the part of the patient to a remedy, and therefore, before deciding that a patient has an idiosyncrasy to the drug, the possibility of its being impure should be carefully considered.

INFECTION OF WOUNDS FROM THE MOUTH OF THE OPERATOR OR HIS ASSISTANT.

It is commonly accepted that wound infection is due either to uncleanliness of the hands of the operator or his assistant, or to the use of ligatures which have not been subjected to sufficient sterilizing processes. The fear of air infection which at one time dominated antiseptic measures has long since passed, though the surgeon endeavors to operate in a room free from dust, and mechanically clean. Experience has taught him that, provided the methods generally adopted for the cleansing of surfaces, instruments, ligatures, and dressing material be scrupulously carried out, he need have little fear of wound infection. None the less, in the hands of the most conscientious such infection occasionally occurs. It is generally ascribed to the use of animal ligatures, and doubtless these are sometimes at fault, but a series of studies made upon expired air during phonation would seem to indicate that the source of some otherwise inexplicable infections may lie in particles of saliva carried from the mouths of the surgeon or his assistants during the course of an operation.

It has been shown that the mouth of a newly-born babe is germ-free, but that almost coincident with the first few breaths there occurs a bacterial invasion which, under ordinary conditions, is likely to last through life. Though it has been demonstrated that the expired air is as a rule more free from bacteria than that which is breathed in, it has also been shown that coughing, sneezing, laughing, or talking necessarily involves the expulsion of minute particles of saliva which are practically always loaded with germs. Many persons habitually thus throw off such particles of saliva to such an extent as to make a close-quarter conversation with them unpleasant. Even those not thus affected can demonstrate in part at least the extent to which such infected particles of moisture are thrown into the atmosphere, by standing in front of a clear mirror at a distance of one or two feet, and speaking in an ordinary tone against it. In addition to such microscopic particles of moisture, there are, of course, myriads of smaller particles which

escape observation, but which, none the less, are capable of carrying infection.

De Leon *(Archiv für Klinische Chirurgie,* 72 Band, 4 Heft), after quoting at length from the extensive literature upon this subject, including the bacteriology of saliva, and demonstrating the frequency with which staphylococci and streptococci are found therein, conducted a number of observations with agar plates carefully protected against ordinary air infection, and removed at about the distance from the mouth of the operator that a wound would be during the course of an operation. The words spoken against this plate were those customarily employed in an operation. Control plates were similarly arranged. It was noted in all cases that streptococci, staphylococci, and sarcinæ were present on the plates against which the words had been spoken. Streptococci were, as a rule, the dominant microöragnisms.

A careful computation led De Leon to conclude that in speaking 300 words, 250,000 microörganisms were cast off in minute particles of saliva.

The result of a great many investigations showed that the average number of colonies growing on an agar plate after 140 words had been spoken was 60, and that as a rule the majority of these colonies were made up of streptococci. As a means of preventing this form of infection it has long since been urged that speech during operation should be limited. Even the few words absolutely necessary implies the ejection of thousands of germs.

There are two methods suggested as possibly effective in preventing this form of infection. The first, and perhaps the simplest, lies in thorough disinfection of the mouth, so planned and carried out that the pathogenic germs lying in this orifice are entirely destroyed. The second method consists in the wearing of some form of apparatus which will catch the drops of saliva that are the carriers of these germs, thus preventing them from reaching the wound surface.

As to mouth disinfection, Miller advised a mixture of saccharin, benzoic acid, tincture of ratanh., oil of peppermint, and oil of cinnamon, which rendered the saliva from the mouth washed out with this preparation innocuous to mice. Montefusco was unsuccessful with his mouth-wash. Pelnar, Rose, Archinard, and others were unable to accomplish thorough mouth disinfection with a variety of antiseptics employed. Koerner demonstrated, however, that the use of tobacco cut down the mouth organisms one-half.

De Leon experimented with the wash suggested by Miller, and found to his astonishment a marked increase in the number of streptococci colonies developed after his experimental tests. This he attributes to the increased flow of saliva induced by the mouth-wash. He became quite convinced that the use of antiseptics for cleansing the mouth was perfectly futile, in so far as preventing infection from this source was concerned. Experiments were thereupon made with gauze masks. In spite of the use of these, colonies still developed on agar plates toward which speech had been directed.

An apparatus was then designed to contain a pledget of absorbent cotton. This was fitted over the mouth in such a way that it was comfortable and did not interfere with speech. The apparatus, somewhat like an inhaler, was fastened behind the ears with a pair of spectacle bands. Its use was entirely satisfactory. In the test with the plates not a single streptococcus or staphylococcus developed. One or two plates showed colonies, but usually they remained sterile. Perhaps inspired by his enthusiasm, De Leon notes that he has employed this apparatus in long operations without the slightest inconvenience.

It would seem that an easy solution of the difficulty would lie in maintaining absolute silence during an operation; as DeLeon points out, this is not practicable. By careful observation of the most taciturn operators, it has been discovered that during the course of a prolonged operation an extraordinary number of words are used. It is, of course, not necessary to direct these words toward the wound; none the less, in the course of an operation, with the mind centered upon the work, the tendency is to speak in this direction. As a rule one particle of saliva gains access to a wound for every word spoken, and each drop contains 5000 microörganisms.

This being the case, perhaps the

source of greatest surprise is that primary union is ever obtained, since the dominating organisms of the saliva are those most dreaded by the surgeon.

The careful washing of the hands, the use of antiseptics upon them, and finally the employment of rubber gloves, procedures now universal, were at one time regarded as absurdities, or at least as unnecessary adjuncts of a surgical operation, by the bulk of practitioners. In the light of papers such as De Leon's, and there have been many such, it seems likely that the operator will in future don, in addition to his sterile gown and rubber gloves, a mouth muzzle of such structure as will prevent infection of the patient from the surgeon's saliva.

TETANUS IN THE GERMAN ARMY.

Tetanus, at one time common enough after wounds inflicted during military operations both in time of peace and war, has, thanks to the hygienic precautions now generally adopted, become a comparatively rare affection. None the less, 96 cases are reported in the German army as occurring during the last twenty years.

At one time there seemed to be good reason to hope that a specific had been found against this disease in the use of antitoxin. Those who have carefully followed the literature on this subject fail, however, to find any convincing proof that such a hope has in any way been realized. It is true that successful cases are reported, but with almost no exception these cases belong to the type in which spontaneous cure is common. In the German army, 25 cases of tetanus were subjected to antitoxin treatment, 10 of which were cured (that is, 40 per cent), whilst of the 71 treated without antitoxin 21 were cured (31 per cent). This shows slightly in favor of antitoxin, but the percentage is such a small one as to be quite inconclusive. There seems, however, to be a growing sentiment in favor of the value of antitoxin as an immunizing agent. Herhold used it in a systematic way during the Chinese campaign; and he suggests that in future it may become a necessary part of the medical stores of every army.

The most striking feature in regard to the development of tetanus in military life is incident to the fact that it is most frequent from wounds due to the explosion of blank cartridges, and that it appears, under such circumstances, in a particularly virulent form, the mortality being 80 per cent.

Talayrach (*Archives de Médecine et de Pharmacie Militaires,* March, 1904) calls attention to the well known fact that toxic infection from the tetanus bacillus usually is dependent on a large number of spores and greatly depressed local vitality of the tissues. This lessened cell resistance is realized very completely in wounds caused by blank cartridges, also to a certain extent by injuries due to projectiles, though it is a remarkable fact that there have been no cases of tetanus in the German army following ordinary gunshot wounds for the last twenty years. They have occurred frequently enough from the trauma following blank cartridge wounds.

A natural inference, in contrasting these figures, is that the disease must be due to the entrance of germs carried by some portion of the cartridge, hence the wads and all other portions were subjected to most careful laboratory research. Musehold, of Strasburg, was able to isolate the tetanus bacillus in over 50 per cent of the cartridges examined. These results were corroborated by Losener and Bischoff.

In such close-range wounds it is obvious that fragments of the wads will be blown into them, thus producing conditions peculiarly favorable to the growth of the tetanus bacillus. It was noted, in following the manufacture of the cartridges, that there was no part of the process which could reasonably be expected to destroy the germs. Bischoff, by quantitative estimate, calculated that one gramme of the cartridge shell furnished not only a large quantity of tetanus bacilli, but from eight to nine million aerobes, among which were staphylococci, colon bacilli, proteus, and bacilli of charbon, which were not pathogenic to animals.

This research is in line with the experience of the American youth at Fourth of July celebrations. The number of cases of tetanus following wounds inflicted by blank cartridges, though never really

great, was sufficiently shocking to lead to a careful investigation as to the causes, these being recognized as lessened cell resistance from the nature of the wound, and the introduction of foreign bodies, the fragments of the cartridges carrying direct infection.

The prophylaxis is easy enough. It should consist, of course, in seeing that the material from which these cartridges are made should be subjected to adequate sterilizing processes. Heat beyond the boiling point, maintained for a few minutes, is absolutely efficient.

Reports on Therapeutic Progress

THE TREATMENT OF PNEUMONIA.

This always interesting theme receives attention once more in an editorial note in the *Archives of Pediatrics* for February, 1904. In this note we are told that the discussion on pneumonia in children at the recent meeting of the Section on Pediatrics of the New York Academy of Medicine brought out some discordant opinions in regard to methods of treatment, but showed an essential community of practice as concerns the principles supposed to be applied. Lobar pneumonia in children is so seldom a fatal disease and is so distinctly self-limited, with a tendency to complete cure, that the most important lesson with regard to its treatment is *non nocere*—that is, be sure to do no harm. Meddlesome therapeutics has been responsible for the loss of many lives. Digitalis is apt to disorder the stomach; expectorants of any kind are almost sure to be sources of gastrointestinal irritation, and even strychnine and whiskey by the stomach are so likely to do harm rather than good that they can only be employed when there is an absolute indication for them. Only near the crisis, and in feeble children when the heart becomes irregular, is it safe to use these remedies. Even then the suggestion that whiskey well diluted shall be given by the rectum rather than by the mouth seems good, while strychnine should often be administered hypodermically.

In all cases the one feature of the patient's condition demanding the physician's constant attention is the gastrointestinal tract. If meteorism occurs, the prognosis of the pneumonia may become rapidly serious. The interference with respiration and with the heart action in the child's weakened condition will surely reduce the strength so that the crisis may not be passed successfully. It is important that the food should be limited mainly by dilution and comminution, though it is equally important that plenty of liquids should be furnished to the child. The fever drives off a large amount of moisture, and this must be compensated for, else the blood becomes less fluid, the circulation, already hampered, more difficult, and the oxidation processes, already diminished by the limitation of the respiratory function, fall still further below what is necessary for normal vitality. The child must always be tempted with water rather than milk, since many a little patient has taken too much milk in the effort to satisfy his thirst. At the beginning of a pneumonia small amounts of calomel and a full dose of castor oil are employed with advantage. Subsequently the bowels must be carefully watched, and if twenty-four hours pass without a movement an irrigation or a saline cathartic must be given without fail.

Another condition that may demand active treatment in lobar pneumonia in children is high temperature, if accompanied by nervous symptoms. The main purpose of the antipyresis should be not the reduction of the temperature, but the relief of the hyperesthesia, the restlessness, and the loss of sleep. Many children, as the result apparently of the deficient oxidation processes in the body, stand the high temperatures very well, particularly during pneumonia. This is quite different from what usually obtains in children in other diseases. Where a temperature of 104°F. causes no restlessness or serious nervous symptoms, only the mildest means should be used to reduce the temperature. Coal-tar products must not be employed unless in the smallest doses. Occasionally quinine, in divided doses, not more than three to eight grains per day, according to the age of the patient, will be found of service.

Hydrotherapy must be the mainstay of the physician when high temperature is causing serious restlessness. The trunk

should be wrapped in a Turkish towel that has been wrung out of water at a temperature not lower than 80° so as to produce no shock, and then water is sprinkled on the towel from time to time, the temperature of this water being gradually lowered; but the treatment must never be continued when the little patient's temperature has fallen below 101° F. The arms and legs must not be included in the wet pack, or the result will almost surely be harmful rather than beneficial.

The treatment of bronchopneumonia constitutes a much more difficult problem than that of lobar pneumonia. The disease lasts longer and the patient's nutrition must be kept up at all costs. The limitation of food which is advisable in lobar pneumonia cannot and should not be maintained in this form of the disease beyond the first few days. From the beginning, then, care must be taken to supply sufficient nourishment of the most digestible kind. The use of predigested foods here becomes important. Their employment must not be delayed until the little patient begins to show signs of weakness. In most cases counter-irritation by mustard plasters applied for a few minutes several times a day is advisable, especially when the cough is hard or when there is distress. Inhalations of vaporized benzoin or creosote, or of an atmosphere saturated with steam, are of particular value when there is cyanosis due to scanty secretion and contracted bronchioles. Oxygen inhalations are frequently life-saving, but the oxygen must be used early and freely until the effect desired is produced. As in lobar pneumonia the use of such stimulants as strychnine and whiskey by the bowel are advisable, if the little patient has shown signs of a sensitive stomach.

Just as with adults suffering from pneumonia the prognosis of the disease depends not so much upon the amount of lung involved as on the condition of the patient's health at the beginning of the attack, so with children, if there has been any previous inflammation of heart, or lungs, or kidneys, or if anemia is present, the prognosis is rendered distinctly worse. Pneumonia is not a lung affection producing general symptoms, but a constitutional ailment having its favorite point of attack in the lungs. The micoörganisms of the disease are now known to be in the circulation, and must be eliminated by the kidney. Any kidney insufficiency made manifest by the occurrence of albuminuria early in the attack is a bad sign and must be considered as portending a severe attack in most cases. Where such complications are discovered to exist, the ordinary expectant symptomatic treatment must give way to more active measures earlier in the case, but with due care not to overdo medication. The function of the skin must be kept active by hydrotherapy, and the work of the heart lessened by the use of nitroglycerin. No general directions can be given, however; the treatment will be helpful only inasmuch as it meets the indications of the individual case.

COCAINE AND ADRENALIN INJECTIONS AS AN ASSISTANT IN GENERAL ANESTHESIA.

ROBERTSON states in the *Northwestern Lancet* of April 1, 1904, that many times when we are giving an anesthetic and think that we have our patient profoundly under the influence of the drug, we find, upon making a preliminary incision, that the skin is still very sensitive, that it requires more chloroform or ether to produce the required anesthesia, and we are obliged to give a great deal more of an anesthetic than we think good for our patient. The writer injects, after Schleich's method, the skin and muscular tissue with a one-half per cent solution of cocaine hydrochlorate containing from one to two drachms of adrenalin to the ounce. This solution will produce the required anesthesia of the skin, and lessen the amount of chloroform or ether required; in fact it will require only about one-half the usual amount—just enough to keep the patient quiet. The writer finds this a great help, and thinks it can be used with advantage in many cases. The adrenalin bleaches the skin and underlying muscular tissue so that there will be no capillary hemorrhage.

In operations for appendicitis and hernia, where it is necessary for the operator to be particular about the dissection, it has a very great advantage, as the different layers of fascia and muscle can be plainly seen and the operation made as easily as on a cadaver.

Objections have been raised to this method by surgeons holding that general anesthesia should not be tried at the same time with cocaine injections, claiming that it is decidedly dangerous to administer the two at the same time. This, however, has not been the writer's experience. He has never seen any ill effects from the use of cocaine under any conditions.

Dr. J. Clarence Webster, of Chicago, reports in the August number of the *Journal of Obstetrics and Gynecology* the removal of an eighty-seven pound cystic fibromyoma of the uterus, which required two and one-half hours for its removal, and the first hour of the operation was with local anesthesia (Schleich's method), followed by a general anesthetic for an hour and a half longer.

The writer has used cocaine in old and young, in patients with dilated heart suffering with chronic nephritis, in nervous, hysterical persons, and fat people, and he has never seen any bad symptoms which he could attribute to cocaine.

The advantages are (1) less chloroform; (2) less pain; (3) less capillary hemorrhage; and (4) a better view of the parts operated upon.

BLACKWATER FEVER.

Editorially the *Medical Record* has the following to say about this subject, which has been discussed in our columns so much in times past: An editorial in the *Journal of the Royal British Medical Corps* for March treats of blackwater fever, with reference to researches recently carried out by Messrs. Daniels, Christopher, and Stephens, in which several interesting points regarding this deadly complaint are mentioned. Attention is drawn to the fact, as regards its geographical distribution, that where blackwater fever occurs malaria, and usually the so-called tropical variety, is also endemic. The white race is peculiarly susceptible to the disease. Daniels defines the malady as "an acute hemolysis of sudden onset, short duration, and spontaneous cessation." He also thinks that the death-rate has been overstated; from his own observations he puts it down at somewhat over 20 per cent. The three main causes are suppression of urine, cardiac failure, and hyperpyrexia. The same writer, referring to treatment, states that in his opinion unless malarial parasites are found quinine should not be given. Sternberg's treatment for yellow fever (frequent doses of bicarbonate of soda and minute quantities of perchloride of mercury) seemed to yield good results.

As to the etiology of hemoglobinuria, although the view is generally accepted that there is some connection between malaria and blackwater fever, the exact relationship has not yet been quite satisfactorily determined. Daniels points out that in British Central Africa, and in West Africa, similar anopheles are found, and these are not found in other countries. He suggests that possibly the different hosts may in some way modify the parasite.

Respecting the relation of the disease to quinine, Daniels notes that cases occur in which no quinine has been taken, that there is no relation between the time at which the quinine is taken and the onset of the disease, nor between the quantity taken and the severity and duration of the attack.

Christopher and Stephens made some observations on the tonicity of the blood in blackwater fever and malaria. Their results showed that the blood in blackwater fever has a low tonicity—*i.e.*, is resistant to hemolysis—which they think may be explained by assuming that all the high tonicity corpuscles have already been destroyed. In malarial subjects there is usually a high tonicity. The blood of convalescents from blackwater fever resembles that of convalescents from malaria. The native's blood frequently showed a remarkably low tonicity. Hemoglobinuric urine and serum from a hemoglobinuric patient had no hemolytic action on the observer's blood. *In vitro* no difference could be detected between the patient's and the investigator's bloods as regards the solvent action of solution of quinine. The investigators suggest the possibility of the lethal action of quinine on the parasites setting free a large quantity of toxins and so causing the blackwater special parasite. Up to the present, however, no one has found any parasite special to the disease.

The views of Daniels, Christopher, and Stephens, respecting the connection between blackwater fever and quinine, conflict with those of Koch and some other observers. There is, however, ample reason to believe that the conclusions arrived at by the British investigators are entitled to as much consideration as those of Professor Koch and his followers.

TREATMENT OF OZENA.

IGNAZIO DIONISIO describes (*Gazzetta Medica Italiano,* Jan. 28 and Feb. 4) his modification, for the purpose of treating ozena, of Finsen's treatment. In a preliminary discussion of the nature and customary treatment of ozena he adopts the hypothesis that the disease is a trophoneurosis, causing atrophy of the mucosa and the bones of the nose, and the characteristic change in the secretion, which loses its bactericidal power, is deficient in water, and easily dries up into crusts. He denies the possibility of cure by cleansing and antiseptic irritations, though they are essential to the patient's comfort, and in many cases their application suffices to destroy all fetor as long as they are regularly used. He has also obtained good results, but not cure, from vibration treatment, which stimulates the circulation and the glandular secretions. He disapproves of all the methods of treatment which involve any destruction of mucous or other tissues, on the ground that the disease quickly spreads again, and involves the whole area within the nose. The chief modifications introduced into Finsen's treatment by the author are that he produces anemia of the tissues by cocaine and adrenalin rather than by pressure, and that instead of operating on a small area at a time he projects the rays freely into the nose, and thus treats a large area at once. His apparatus consists of an arc lamp of 300-candlepower, surrounded by a glass screen containing water in circulation, to intercept the calorific rays. Each application of the ray lasts two hours, and the author has been in the habit of considering 200 sittings necessary for the cure of a severe case, and 40 sittings for a mild case—that is, one in which the characteristic fetor is absent, when irrigation is regularly carried out once a day. But since the technique of the method has been improved the necessary course of treatment is not so long. Notes are given of 11 cases treated, though others have been treated in the same way and invariably with good results. In nearly all the cases it is stated that the fetor has disappeared, and in most it is found that the cure is maintained since the treatment has been discontinued, usually several months or a year. The improvement is not confined to the more accessible parts of the nose. The sense of smell, previously lost, has in many cases been recovered. The author claims that there is a real *restitutio ad integrum,* and that after a sufficiently long course of treatment normal conditions are restored in every case, other forms of treatment, such as irrigation, becoming unnecessary.

Since these good results have been obtained, Casassa has investigated the action of light on the micoörganisms most commonly found in cases of ozena, but its influence on the nutrition of the tissues is still unexplained, for the author does not in any way accept the theory that the microörganisms are the cause of the ozena. The author has employed the same means of treatment for cases of suppurative otitis media which did not yield to ordinary remedies. The results obtained have been good and more rapid than in cases of ozena.—*British Medical Journal,* March 26, 1904.

THE LIMITATIONS OF CHEMISTRY IN INFANT FEEDING.

A practical pediatrist, Dr. CHAPIN, while recognizing the value of percentage feeding of children, nevertheless puts in a plea for the adaptability of the child to its food in the *New York Medical Journal* of April 23, 1904. He says the most expert investigators into the problems of animal nutrition have found that the peculiarities of the species and individual must be carefully considered, or good results in feeding cannot be obtained. After finding what kind of food is best suited to the animal's appetite and digestion, chemistry steps in and aids in determining the quantities necessary to maintain the animal or enable proper

growth to be made. Such investigations have shown that there are minimum quantities of different kinds of foods, which are absolutely necessary for the well-being of any particular animal or species of animal, and a chemical analysis, which shows the general composition of an animal's food and what ingredient is deficient in quantity, will often be of great value in explaining lack of proper development or failure to do well. In practice there is little call for frequent analysis of food; after the minimum food quantities have been determined for a particular species of animal, a general knowledge of the composition of foods and a rough method of calculating the nutritive value of the food that is being eaten is about all that is necessary. Each animal must be fed according to its peculiarities.

In infant feeding it has been found by experience that milk must be the basis of the food, as milk develops the digestive tract. It has also been found that cow's milk diluted more than three times is not a safe food for continuous use for infants, as it does not contain enough proteid or tissue-building material. Diluted sweetened condensed milk has the same defect. It has also been found by experience that infants require from two to four per cent of fat and four to six per cent of carbohydrates, along with tissue-builders, to insure proper growth. As no absolutely exact amounts are necessary, chemical analyses of food are only of general value in establishing the range of safety in feeding. It is well known that some animals and persons thrive on a quantity of food that other persons or animals would starve on. In other words, some persons, or animals, appropriate their food to better advantage than others. The successful feeder is the one who gets the infant to taking some suitable food, and then adjusts the ingredients so that they are in sufficient quantity to carry on the normal changes that take place in the body and allow storage of tissue other than fat, and at the same time produce proper functional development.

In a few words, the object of this paper is not to disparage chemical analysis of foods, which is of great importance, but rather to show that food chemistry has limitations in practical feeding; also that the chemical teachings of a few years ago are not the same as those of to-day. If the whole basis of the teaching of infant feeding should be chemical, then the principles taught have frequently been wrong, as it is now known that some of these principles have been erroneous. Cow's milk and human milk have been analyzed many times, but the advances in infant feeding have come not so much from these analyses as from clinical and physiological experiments with cow's milk, altered or modified in other ways than by simple quantitative adjustment of the component parts. The advances made have been greater along the line of physiological requirements than from exclusive chemical studies. If chemical composition alone is to be considered, cellulose (paper), $C_6H_{10}O_5$, should be as good a food as starch, $C_6H_{10}O_5$; cane sugar, $C_{12}H_{22}O_{11}$, always interchangeable with milk-sugar, $C_{12}H_{22}O_{11}$; and all caseins should act exactly alike. Jordan well states the problem when he says: "A ration may be chemically right, but practically wrong, but at the same time it is worth much to the feeder to be assured that the nutrients which he supplies to his animals will meet their physiological needs." This principle applies to infants as well as to the lower animals.

SOME GENERAL CONSIDERATIONS ON THE TREATMENT OF TYPHOID FEVER.

In the *New York Medical Journal* of April 23, 1904, MANGES states that in his opinion in the early period of a case of typhoid fever, no stimulants are needed. As the pulse-rate rises and as the patient becomes more apathetic and somnolent, then the need for them is more apparent. The rational use of hydriatic measures is a most powerful stimulant, and when the bath or pack is preceded by whiskey and followed by hot food they leave little to be desired. Should more powerful measures be needed, then caffeine in proper doses should be employed; its combined stimulating effects upon the cerebrum and the circulation are not sufficiently appreciated by most physicians. A sinking of the blood-pressure and failing circulation demand in addition that strophanthus or sparteine or camphor shall be used hypodermically in full doses and at short intervals. To give them by mouth is to drown these fractions of a

grain in the quarts of liquid which are stagnating in these non-absorbing and atonic stomachs; they might as well be given by absent treatment. There is an art in the successful use of stimulants in these desperate cases; the practical rule is: Do not give stimulants of this type until they are actually needed, and when you do use them, give them in such a way that they are actually absorbed, and give them at frequent intervals and in such rotation that a constant and prolonged effect is obtained. The intelligent and ever alert members of the house staffs of our hospitals, who have these cases under constant supervision, could give points to many a much older practitioner. The successive house physicians at the Mt. Sinai Hospital saved case after case by judicious and proper stimulation. Many a pauper in the hospital ward has received treatment which the millionaire in his palace has hoped to secure in vain. The objection may be raised that overstimulation might occur. This objection is perfectly valid, and must be borne in mind.

Surprise may possibly be experienced that no mention is made in this paper of strychnine or digitalis. As a routine drug the author considers strychnine a danger in typhoid fever. Some years ago he had the exceptional experience of seeing a very severe case of typhoid fever in a young man who in the late stages of his disease developed the arched back, the trismus, etc., which are so characteristic of tetanus. This ordeal he survived only to die of a perforation. As strychnine had been very sparingly used in this case, it was natural to look for some other cause. This was not hard to find, since the early exaltation of the deep reflexes, the subsultus, etc., only too plainly indicate that in many cases the action of the typhoid toxin on the nervous system is closely allied to that of strychnine. Why, then, use a drug whose physiological action is such that it must intensify some of the effects of the toxins which are produced by the disease germs in question? This restriction of its use is not meant to be applicable to all cases, since, as is well known, the effects of the typhotoxins on the nervous system are not the same in all cases. The rule the author follows is very simple, namely, when the patellar reflexes are exaggerated in typhoid fever, never use strychnine. If they are normal or diminished, as sometimes occurs, he does not hesitate to use it, if other stimulants have not been satisfactory.

For analogous reasons he rarely uses digitalis, since the slow inhibited pulse which is so characteristic of the disease has seemed to indicate that better results might be obtained from other sources. Then, too, the grave myocardial changes which occur in typhoid fever hardly offer a good indication for the free use of digitalis.

CURABILITY OF EPILEPSY.

In the *Clinical Journal* of April 20, 1904, TURNER after a consideration of the prognosis of epilepsy refers briefly to its treatment by the bromides. Whether the treatment with bromides is in every case the proper treatment is another matter, and one which he does not enter upon on the present occasion. But it has come to be largely a matter of convention to treat every case of epilepsy with the bromides. The author is in the habit of treating each case of epilepsy at the commencement with the bromide of potassium or sodium. In many cases this treatment turns out a success; in some cases it is an utter failure. But, on the general plan of treating epilepsy by means of the bromides, he makes the following remarks:

First, do not give too large a dose of the drug. By large doses of bromide he means 90 to 120 grains a day. If bromide is going to be beneficial it will influence the disease in doses of 30 to 45 grains per diem. If the case does not do well on that dose it probably will not do well at all.

Secondly, should bromide be administered in doses three times a day, or in a dose once daily? The majority of cases should be given one dose at bedtime. More especially should this be the line of treatment if the case is one of nocturnal epilepsy or of fits recurring in the early morning. If a case has fits during the late evening or shortly after going to bed, give the medicine at about five or six o'clock in the evening. If in any case a definite periodicity is found, forestall the onset by a large dose of bromide, and satisfactory results are likely to ensue.

Thirdly, for how long should we con-

tinue the administration of the bromides? Some say until we have arrested or ameliorated the frequency of the seizures. There is no greater mistake. If the fits are arrested for some months, the case is most likely to be benefited by a continuance of the drug; therefore continue the bromide indefinitely, in moderate doses. Daily doses of 30 grains of potassium bromide may be given for many years without ill effects. Some cases attending at the hospital have taken bromide for over twenty years.

Fourthly, should the bromide administration be stopped in a case in which the disease has become arrested? Some epileptics take the matter into their own hands, and on their own initiative stop the bromide treatment. If the question is put whether it is advisable to stop the drug, we must be guided by the facts in individual cases. The author prefers to continue the bromide indefinitely. If the bromide is stopped some symptom, such as vertigo, will probably arise in the course of weeks or months to make the patient think that he is going to have another fit. As a matter of fact, the majority of patients with arrested epilepsy prefer to continue their medicine. That is why there are cases of from fifteen to twenty or more years' duration coming to the hospital regularly to receive their bromide.

THE USE OF ETHYL CHLORIDE AS A GENERAL ANESTHETIC IN GYNECOLOGY.

The *Journal of the American Medical Association* of April 2, 1904, contains an article by MONTGOMERY and BLAND describing their plan of using this drug.

A cone made of ordinary cardboard covered with gauze, with its base so constructed as to fit snugly over the face of the patient, has proved of good service. Several layers of gauze are secured over the opening, on to which the anesthetic is to be sprayed. A rapid evaporation or escape of the anesthetic is prevented or minimized by placing a gauze pad over this. In administering ethyl chloride for the purpose of securing general narcosis, the patient should be prepared as is done for the administration of any general anesthetic. The cone is applied tightly over the patient's face in order to prevent excessive intake of air. The patient is then instructed to breathe naturally. The agent is sprayed on to the cone more or less constantly from a tube with an opening sufficiently large to allow the rapid escape of the agent on to the cone. Should this not occur, and if anesthesia is not promptly effected, two tubes should be used.

The time required for complete anesthesia is usually from one-half to two minutes, but with some persons a longer time is sometimes necessary. The authors state that they have never failed to secure operative anesthesia, though in a certain number of cases relaxation was more marked than in others. Most observers assert that complete muscular relaxation is never obtained, and this statement is believed in the main to be correct, though in the series of cases they noted in a few instances narcosis equivalent to complete relaxation. Lotheissen asserts that in cases of incomplete relaxation the previous hypodermic administration of heroin would readily overcome the condition. It is asserted that excitement sometimes results from the administration of ethyl chloride, and this condition McCardie says is due to the too free admission of air, though at the same time a certain amount of air must be allowed in all cases.

Thus far the teaching has been that ethyl chloride finds its true service in the domain of minor surgery, or in that class of cases where prolonged anesthesia is not required, and many observers claim that it is of decided advantage preliminary to the administration of ether. A few men have used the drug for various major operations, and report having had patients under its influence for many minutes. The writers have employed ethyl chloride for almost every condition indicating the use of a general anesthetic. They have used it prior to the administration of ether, and heartily concur with the opinion of many men that the agent rapidly overcomes the excitation that results from the first stage of ether narcosis. Further, it undoubtedly decreases the amount of ether required, and therefore to a certain extent combats the post-etherization nausea and vomiting. They have had patients under the influence of the anesthetic as long as fifty-four minutes, and under

its influence have performed hysterectomy and the various combined operations on the pelvic floor and intrapelvic viscera.

In gynecologic work ethyl chloride will be especially employed to allay the pain and relieve muscular contraction in abdominal pelvic examinations. Its employment will frequently permit of an accurate diagnosis in what would otherwise be an obscure case. The short time required for anesthesia, the rapidity with which the patient will recover from its effects, and the decreased tendency to nausea and vomiting, will allow its employment in office practice, with the assurance that the patient can return home without the need of prolonged attention.

The same indications will lead to its employment in all operations of minor character where prolonged anesthesia will not be required. In enfeebled patients requiring vaginal incision for pelvic drainage it is an ideal agent, for its administration need not be begun until everything is prepared for the incision, so that the patient will be under its influence only a few minutes.

Probably its most effective employment will be as a preliminary to the administration of ether or chloroform, by which the distress and sensation of asphyxia produced by the latter agents will be avoided. A nervous woman may be brought quickly under the influence of the ethyl chloride, and the ether or chloroform follow without the patient experiencing any of the ordinary discomfort of an anesthetic, and consequently without a struggle. Her convalescence from the effects of the anesthetic is more rapid because she has not undergone so thorough a saturation with it.

The principal disadvantages of the agent as a general anesthetic are:

1. The patient passes under and out of its influence so quickly that the administrator must be unusually expert to avoid, on the one hand, profound anesthesia, and on the other the emergence from its effects at an important stage of the operative procedure.

2. The expense of the drug excludes its use in a general clinic, but the increased employment of this agent which must necessarily follow the general recognition of its advantages will doubtless resut in a reduction of its cost.

In the *Bristol Medico-Chirurgical Journal* for March, 1904, WHITEFORD states that when the anesthesia has to be prolonged he usually passes from ethyl chloride to ether, which is placed beforehand in the body of the inhaler with the indicator at 0. Breaths of air must be given according to the color of the patient while the indicator is being rapidly advanced to between 2 and 3. The transition from ethyl chloride to ether is much easier and less liable to be marked by partial return of consciousness than is the transition from nitrous oxide to ether.

If chloroform is necessary from the nature of the operations, he either changes from ethyl chloride to ether and from ether to chloroform, or passes from ethyl chloride direct to chloroform, commencing with chloroform in the body of the inhaler, the indicator being at 0, and as soon as ethyl chloride anesthesia has been induced removes the bag and gradually advances the indicator to 1 or 1½, according to the state of the patient.

Working with nitrous oxide at six shillings per 100 gallons and allowing seven gallons for each patient, one nitrous oxide anesthesia costs 5.13 pence (about 10 cents), and with ethyl chloride refills at two shillings (50 cents), and ninepence per fifty cubic centimeters, one ethyl chloride anesthesia costs 4.71 pence—a difference in favor of ethyl chloride of .42 of a penny, or three shillings and sixpence (87 cents) on each hundred administrations.

No drug sufficiently powerful to produce unconsciousness can be absolutely free from risk. Luke says: "Seitz alone has published records of 12,500 cases with only one death. In all the fatalities which have occurred under ethyl chloride—and there are only four or five cases on record—the patient has been suffering from some grave cardiac or respiratory disability," and as Dr. Hewitt puts it in the September number of the *British Dental Journal*, we are now entitled to consider that "ethyl chloride is a comparatively safe anesthetic, as safe, all things considered, as ether. The author estimates the mortality at something between 1 in 10,000 and 1 in 15,000; but of course, as with all anesthetics, much depends on the experience of the administrator;" and Dr.

Hewitt later says: "Employed in its own sphere, namely, for inducing anesthesia only prior to ether or chloroform, and for brief dental or throat operations, ethyl chloride is undoubtedly very much safer and more convenient than chloroform."

Ethyl chloride, given for short operations, produces an anesthesia which lasts for more than twice as long as that of nitrous oxide. In short dental operations, ethyl chloride, by producing muscular relaxation, does away with the preliminary gagging, which to many patients is the most objectionable part of nitrous oxide anesthesia.

From its portability and power of rapidly inducing a general anesthesia, which is followed by quick recovery and slight after-effects, ethyl chloride bids fair to come into general use, especially in private and country practice, and as a preliminary to ether or chloroform appears likely to largely supersede nitrous oxide.

THE VALUE OF DIGITALIS IN SHOCK AND COLLAPSE.

CRILE, of Cleveland, in *American Medicine* of April 23, 1904, made a series of experiments in regard to the value of digitalis in shock.

In these experiments the fluid extract, the tincture, and digitalin were used. In the normal animal therapeutic doses of digitalis, intravenously administered, caused a rise in the blood-pressure. The rise began after a latent period of half a minute to several minutes, and gradually increased until the maximum was reached. The maximum was well sustained for a considerable time. The pressure finally assumed about its previous level. During the ascent, the continuation, and the descent the curve was usually even; the length of the pulse wave was usually increased; the heart's action was considerably increased in force and appreciably diminished in frequency. When given in larger doses or when smaller doses were repeated beyond therapeutic limits, the blood-pressure rose higher and more abruptly. The heart at first beat with greatly increased force and diminished frequency. The intermissions which were sometimes noted were usually the first symptoms of a cardiac breakdown. The latter was manifested by slow, powerful beats, followed by a varying number of rapid, weaker contractions, making an irregular blood-pressure curve. If the overstimulation fell short of a fatal breakdown, the intervals of alteration between the slow, powerful contractions and the rapid, weaker ones increased, later only intermissions appearing; finally the normal rhythm was reëstablished. In the experiments in which the overstimulation reached the fatal breakdown, the alterations became more marked and the heart suddenly stopped. The force of the contractions in some instances was so much increased as to raise the thoracic wall and even shake the entire animal. In the experiments in which both vagi and accelerators had been previously severed, the effects were not so marked. In careful measurements of twenty-eight experiments on single doses, the mean rise in the blood-pressure was 8 millimeters. In animals reduced to varying degrees of surgical shock, digitalis usually caused a rise in the blood-pressure. When the animal was reduced to such a degree of shock that burning the paw or stimulating the sciatic nerve caused no rise in the blood-pressure, digitalis caused a slight, if any, rise. The highest rise was 10 millimeters.

When overstimulation was obtained by administering too large a single dose, or by repeating smaller doses, the heart became extremely irregular, or the animal died suddenly from cardiac failure. In some instances convulsions occurred.

The respiration, when at all affected, was either impaired or arrested. Death in the digitalis experiments, even in those in which the dosage was only therapeutic, was usually more sudden than in the controls. Although the data do not permit positive statements, it seemed, on the average, that in cases of shock the animal treated by digitalis did not live so long as the controls. It may certainly be stated that they did not live longer than the controls. In the experiments in which the medulla was cocainized and those in which the cord was severed just below the medulla, digitalis caused a distinct rise in the blood-pressure. When the heart had ceased to beat, digitalis introduced by intravenous infusion or by direct injection into the chambers

or the walls of the heart did not produce any appreciable effect. The animals showed considerable idiosyncrasy in their reaction to digitalis.

A PLEA FOR ASEPTIC MIDWIFERY IN GENERAL PRACTICE.

The *Practitioner* for April, 1904, contains an article by COOPER with this title. It reminds us that the first point in aseptic technique is the antiseptic toilet of the obstetrician and nurse. The obstetrician's coat should be removed, the shirt-sleeves rolled up, and a clean long apron or towel put on over the other clothing. The hands and forearms are then thoroughly scrubbed and washed with liquid antiseptic soap, special care being paid to the nails. They are then steeped for several minutes in a 1-in-1000 solution of biniodide of mercury. When the hands have thus been disinfected the practitioner must, whenever they become reinfected by contact with septic material, cleanse them again. The nurse must always similarly disinfect herself before handling the patient.

All instruments likely to be used should be sterilized by boiling in carbolized water (1 in 20), including scissors, forceps, dilators, needles, etc. A new vaginal douche should be provided, thoroughly clean and disinfected, and kept specially for the purpose, the nozzle being either of glass or metal, so that it can be boiled each time after using.

A supply of tablets for making a 1-in-1000 solution of biniodide of mercury, some pure carbolic acid, liquid antiseptic soap, lysol, iodoform gauze and sublimate wool or Gamgee tissue, and T-bandages should also be provided. For sutures sterilized silk or silkworm-gut, stored in tubes of carbolized alcohol (1 in 20), answer best.

Before delivery the bowels should be thoroughly cleared by an enema, an aperient having previously been given—the night before, if possible. The enema should at once be followed by a washing and swabbing of the anal region, and any parts contaminated at the time, with 1-in-1000 biniodide of mercury solution. Next, the whole of the vulva and perineal regions are well scrubbed with liquid antiseptic soap, and the hair on each side of the labia and at the lower part of the mons veneris is clipped short with scissors, or preferably shaved. A carbolic compress (1 in 40) is then applied over the vulva. The above details may usually be left to the nurse. The practitioner's first duty, after performing his own antiseptic toilet, should be to disinfect the vagina, both externally and internally, by swabbing and douching freely with 1-in-1000 biniodide of mercury solution, to which a little lysol has been added for lubricating purposes. This should be done with the same care and thoroughness as though he were about to perform a vaginal hysterectomy. He should then apply a fresh compress, which is kept on as much as possible until the child's head is delivered, the prepared finger or hand being introduced beneath it when necessary for purposes of examination or manipulation.

After delivery, one hand is maintained on the uterus to keep it firmly contracted, and any clots are squeezed out into the vagina. This passage is then douched out with 1-in-1000 biniodide of mercury solution, the finger being meanwhile introduced to clear out any clots, shreds of membrane, etc., and to explore for lacerations of cervix or vagina. Any considerable lacerations are at once sutured, the raw edges being first well cleaned with the antiseptic. A final douching is then given, and if thought fit a weaker solution (1 in 4000) can be used toward the end. The external genitals are then cleaned with antiseptic solution and dried with sublimate or izal wool.

Local Antiseptic Dressing of the Patient.—A strip of iodoform gauze wrung out of 1-in-1000 biniodide of mercury solution is inserted within the vagina (to act both as a drain and a filter), and a second piece is applied over the whole vulval region, and outside this a large pad of sublimate wool or Gamgee tissue is placed, and fixed in position either by a T-bandage or by a folded diaper pinned in front and behind to the lower edge of the abdominal binder.

After-treatment.—As the outer dressings become soiled they are replaced by clean ones; the strip of gauze internally is not changed until the patient is again douched. The washing of the external

genitals and the douchings are continued once or twice daily, until all wounds are healed and all discharge has ceased—*i.e.*, at least ten days to a fortnight—the antiseptic dressings being meanwhile constantly replenished, as in dressing any external wound.

With regard to the action of the bowels, the author strongly protests against the routine use of aperients on the third day. He has observed a number of instances in which infection has been traceable to "soiling" of the vulval region with feces (and however careful the nurse may be, it is sometimes difficult to avoid this). So long as the patient is comfortable, there is no reason why there should be any interference with the bowels, and in cases where the laceration of the perineum has extended into or close to the anus, the author prefers to leave the bowels undisturbed for a week or longer, as he has never seen any harm result therefrom.

[In certain cases the direction to use douches, and to act as if for a vaginal operation, may be necessary, but in most instances we think this advice is excessive.—ED.]

SOME POINTS ON THE DRUG TREATMENT OF PNEUMONIA IN INFANTS AND YOUNG CHILDREN.

FISCHER advises in the *New York Medical Record* of April 23, 1904, that in the case of infants suffering from pneumonia the child be placed in a room having fresh air and all the sunlight possible. The temperature of the room should be between 68° and 72°, never warmer, rather cooler.

There are three methods of eliminating toxins from the body: First, through the bowel; secondly, through the kidneys; and thirdly, through the skin. In every febrile process there is a slight torpidity of the secretions, hence it is wise to stimulate the emunctories of the body. One drop of tincture of aconite added to one-half teaspoonful of spiritus mindereri can be given three or four times at intervals of one hour until diaphoresis is produced. A hot mustard foot-bath given at the same time will aid the aconite in reducing the temperature. If the fever persists in spite of the aconite, sponging the surface with alcohol and tepid water every half-hour will be very grateful and aid in reducing the fever. If we are dealing with a temperature of 105° F. or more, the infant should be watched very closely for twitching or spasm. The temperature at this stage should be reduced by the diaphoretic drugs above mentioned, and instead of cold sponging a cold pack consisting of a sheet wrung out in cold water should be wrapped around the chest, and should be repeated every half-hour until the temperature goes below 103° F. The effect of the cold pack is not only seen in the reduction of the temperature, but some children will fall into a restful sleep. There is always a soothing effect on the nervous system when cool packs, at a temperature of 70° to 80° F., are applied.

A good dose of castor oil to relieve the intestinal tract is advisable. A very pleasant laxative, and one that the author uses in preference to castor oil, is citrate of magnesia. As citrate of magnesia contains citric acid, it not only has a laxative effect, but a diuretic effect as well. It also quenches thirst. The author frequently advises the use of acidulated water, made by adding five drops or more of diluted phosphoric or diluted hydrochloric acid to a tumblerful of sweetened water, to be given *ad libitum*.

This is the most important part of the treatment. Unless the strength is supported by proper feeding we cannot expect to have resolution take place and see the baby recover.

The interval of feeding should be prolonged and the food given well diluted. An infant that received eight ounces of milk before it was taken sick should receive during an attack of pneumonia four ounces of milk and four ounces of water. If this is not well borne, milk should be excluded and whey given in its place. Soup or broth or strained gruel may be given. Water should be given freely.

No greater mistake is made than constantly to disturb a child suffering with pneumonia. To give medicine every hour night and day, and keep the child awake, is to retard convalescence. While food may be necessary to stimulate subnormal vitality it should be given with due regard to an infant's requirements, and if the heart's action is good it is poor judgment to awaken a sick child to give food or medicine.

An interesting case, seen recently by the author in consultation, was that of a child who vomited during the course of lobar pneumonia. The child was either fed or wakened for medicine every fifteen minutes night and day. Besides this it received a "cough mixture" that contained syrup, which is one of the worst things to pour into a feverish stomach. When the medicine was stopped, and absolute quiet for at least three hours at a time ordered for the infant, the vomiting ceased and the child finally recovered. The child slept quietly after receiving its food or medicine until it was again awakened. The author makes it his rule never to disturb an infant oftener than every two hours by day, and rarely oftener than every four hours at night. By this he does not mean to advocate neglect, especially if nervous symptoms, such as twitching or spasms, are seen during hyperpyrexia, but in an ordinary case of pneumonia in which no severe fever exists rest is as important as fresh air and food.

MERCURIC CYANIDE AS A SURGICAL DISINFECTANT.

HARRINGTON, of Boston, who is so well known as a teacher in matters hygienic, contributes to the *Boston Medical and Surgical Journal* of January 14, 1904, the results of a research on this drug.

In the course of a series of experiments in the field of practical disinfection, the writer turned his attention to the determination of the rapidity of action of mercuric cyanide, a substance which of late has come into considerable favor in surgical practice, being used in solutions of 1:1000 and 1:2000 as a substitute for corrosive sublimate, over which it is believed to possess a number of distinct advantages, among which are non-formation of precipitates with albumins, and rapid action. The latter quality is certainly of the very greatest importance, since an agent that destroys bacteria only after prolonged contact may be worse than none at all, because of its leading false sense of security, for with full confidence of immediate action one may proceed in an operation with an agent that serves no useful purpose.

In testing the germicidal property of mercuric cyanide, silk threads, impregnated with twenty-four-hours-old bouillon cultures of bacillus pyocyaneus, bacillus coli communis, and staphylococcus pyogenes aureus and albus were subjected to the influence of a 1:1000 solution of the pure salt. After varying periods of contact they were withdrawn and planted in tubes of sterile bouillon, which were then incubated at 37° C. for twenty-four hours. In the first experiment the longest period of contact was ten minutes. The table below, in which + indicates growth and — indicates sterility, sets forth the results.

EXPOSURE.	B. pyocyaneus.	B. coli.	Staph. aureus.	Staph. albus.
10 seconds	+	+	+	+
20 "	+	+	+	+
30 "	+	+	+	+
40 "	+	+	+	+
50 "	+	+	+	+
60 "	+	+	+	+
1¼ minutes	+	+	+	+
2 "	—	—	+	+
3 "	—	—	+	+
4 "	—	—	+	+
5 "	—	—	+	+
7 "	—	—	+	+
10 "	—	—	+	+

The results obtained with the two species of pus cocci led to further experiments to determine how long these organisms can maintain their resistance. Staphylococcus albus survived exposures up to twenty-five minutes, but was destroyed in half an hour; staphylococcus aureus was unaffected by contact for no less than three hours. The threads infected with this organism were exposed 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, and 60 minutes, 1½, 2, 2½, and 3 hours, and with the exception of the last, which required 48 hours' incubation, all yielded abundant growths within 24 hours.

Mercuric cyanide is more commonly employed in conjunction with double its weight of borax, which substance serves to prevent corrosion of instruments. Since the combination might perhaps prove to exert a more pronounced bactericidal influence than the cyanide alone, it too was given a trial. Prepared tablets, one of which in a liter of water gives a cyanide strength of 1:2000, were obtained, and two solutions were made—one with four tablets (1:500), and the other with one (1:2000). Neither proved to have any influence whatever on staphylococcus aureus up to a half-hour, beyond which time the tests were not continued.

The above results can lead to but one conclusion concerning the practical value

of mercuric cyanide, for a substance which, when employed in the strength recommended, cannot destroy all known species of pus organisms within three hours, and in double that strength accomplishes nothing in thirty minutes, can hardly be classed among the efficient germicides.

ACUTE OTITIS MEDIA.

In the *Northwestern Lancet* of April 15, 1904, PARSONS gives the following advice as to the treatment of this condition:

To prevent the occurrence of middle-ear trouble such nasal and pharyngeal diseases as will render liable infection of the Eustachian tube and tympanum must be attended to.

The dismissing of cases of catarrh with the statement that "everybody has it and that there isn't very much to be done with it anyway," is responsible for most of the middle-ear trouble occurring after the first few years of infancy.

Hypertrophy, and degenerate conditions of the pharyngeal lymphoid structures, should receive proper treatment. If we remove the adenoids and degenerated tonsils, we have removed a great predisposing cause. If we relieve the catarrhal conditions of the nose and nasopharynx, and keep the mucous surfaces clean with alkaline antiseptic douches, we will have little infectious material enter the Eustachian tube. Douching must be done carefully, and blowing the nose should be done with caution. Digging away at the external canal to remove cerumen should be prohibited. (This last remark might be listened to with advantage by some physicians).

A diagnosis of otitis media having been made, our treatment should be governed by the pathological conditions present. A free movement of the bowels is desirable. In the earliest stage congestion may be lessened, and secretion diminished, by the administration of 1-500 grain each of atropine and aconitine, given hourly until their physiological effect has been produced, and thereafter as often as may be necessary to keep up the effect as long as desired. Chloroform vapor may be poured into the ear for the relief of the pain. Application of a 10-per-cent solution of cocaine and adrenalin solution to the drumhead is often efficacious; also dry heat from a hot salt-bag. Inflation of the tympanum with the vapor of menthol and camphor helps the pain both by the local action of the drugs and the equalization of the air-pressure. The drumhead should be inspected to note if there is any accumulation of secretions behind it. If this is the case, or if the drumhead is sclerotic, and other efforts to relieve the pain have failed, free incision of the membrane is demanded. This should be done under strict antiseptic precautions both as to instruments and field of operation. If no secretion is found, the wound is left to heal, which it does readily. If secretion is present, a free enlargement of the puncture is to be made, so as to permit free drainage. If there is no pus present, the ear is to be packed loosely with sterile gauze, and a sterile dressing put on the outside. This is to be continued until healing has taken place. If pus is present, it must be treated like pus in any other part of the body. Free drainage is imperative.

At this point aurists disagree as to the best mode of procedure. For example, Bochner of Leipsic uses the dry method, claiming thereby to get sufficient drainage, give the organ of hearing rest, and avoid infection of other parts. Dry sterile or medicated gauze is packed into the external canal, up to the membrana tympani, secretions having been first carefully mopped out with sterile cotton swabs. The dressings are changed once in twenty-four hours, or oftener if necessary. The majority of aurists, however, use the other method of irrigating. Some prefer sterile water or saline, others some antiseptic solution, keeping the ear packed between irrigations as in the dry method. There are undoubtedly advantages in both methods. However, if a large amount of pus is present free irrigation would seem to be of advantage. This is, of course, to be done very gently. A 1:1000 formalin or bichloride solution, used until the return flow is clean, and followed by instillation of 10-per-cent to 20-per-cent argyrol solution, has given the best results in the author's hands. The argyrol is allowed to run into the tympanum through the perforation by inclining the head, and the external canal is then

packed, inserting a small wick through the opening if possible. If the secretions gum up the canal, they are easily removed by the application of peroxide. The discharge must be attended to carefully until it has ceased. To neglect it and allow it to become chronic would be a serious mistake.

If mastoid complications set in, prompt, radical surgical interference must be resorted to. Pierre Brunel lays down the following rules, which sound somewhat radical, but which will no doubt become more generally accepted not long hence:

"If the discharge is extremely abundant, open the antrum, even if the apophysis is not painful, in order to establish good drainage, to avoid complications, and obtain a rapid and radical cure. If the apophysis is painful, or if the posterior superior border of the canal is affected, the antrum certainly contains pus, and it is absolutely necessary to open it. To delay in such cases is to expose the patient to complications always grave and frequently fatal."

THE TREATMENT OF ACNE VULGARIS.

In the *Interstate Medical Journal* for April, 1904, ENGMAN advises the following treatment for this disease:

When the lesions are superficially situated, the curette, when passed firmly and swiftly over the skin, detaches the crust and scrapes off the heads of the papules, pustules, and comedones, and their contents can then be easily expressed. The local medication used can therefore act more directly upon the offending organisms after the removal of the protective crusts and covers of the lesions.

In the writer's experience the *x*-rays are particularly beneficial in two forms of acne: 1st, acne indurata, so-called, when the lesions are flatly convex, presenting no summit or peak, whether superficial or deeply situated, and when of a markedly inflammatory nature; 2d, in acne rosacea, accompanied more or less by active inflammatory symptoms.

When the lesions of acne are more or less deeply situated in the skin and are of a flatly convex form, such as we find in acne indurata, the curette fails to perform its proper office and glides over the little lesions, leaving them in their former condition; therefore the lancet must be used to evacuate their contents, which causes some scarring and does not prevent the formation of new lesions in the neighborhood. Here the rays act as a specific, causing the little tumors gradually to disappear, sometimes as if by magic. Often after the first treatment marked improvement has resulted. There is no remedy, in the author's experience, that has this specific action; the effect is a specific one, for the lesions can be made to disappear under their influence without producing any obvious change in the normal skin about them—an action similar in its results to that of mercury upon syphilitic lesions. Such a result must awaken the enthusiasm and gratitude of one who has patiently wrestled with a stubborn condition like acne indurata for years, with at times discouragement amounting almost to despair. Before the introduction of the rays in the treatment of acne indurata we could promise the patient little more than a slim diet, much medicine, many thrusts from the lancet, greasy salves, sulphurous lotions, while now we can cause the disappearance of the disease without any of these hardships. Even upon a diet liberally mixed with chocolates, patties, and other much-vaunted pimple producers, the writer has seen the disease disappear; however, he does not recommend this particular dietary except as an experiment.

By the older methods of treatment relapses were as severe as the original attack; in fact, new lesions would appear during active medication, in spite of the most scrupulous care and diet, thus dragging the cases on for months and years. With the *x*-ray relapse is not so frequent; when it does occur the lesions are much less resistant, more superficial, and far more easily eradicated than the earlier ones. By judiciously timed exposures, after the cure of an attack, recurrence can in the majority of cases be prevented. One patient who has not been free from acne lesions for eighteen years, has now enjoyed perfect immunity for eight months. This lady had been treated by some of the most celebrated men in this country and Europe, had spent months in watercures, had been to celebrated internalists, dieted, had conscientiously tried to relieve herself of this disease, but without avail until she submitted to the *x*-rays. Such an example is enough to convince one of

their efficacy. In acne rosacea the results are equally as good as in acne indurata, but the involution of the lesions is slower than in the former condition.

Mild curettage of the face on the days that the rays are not used is, in this condition, often of great assistance. In the management of acne rosacea, as well as acne indurata, new lesions occasionally appear during the series of exposures, but they are non-resistant, mild, and quickly undergo involution. Relapses in the majority of cases can be prevented in the former as well as in the latter condition by the proper use of the rays after the initial eradication of an attack.

Those who have used the *x*-rays in acne are sanguine of their efficacy; yet many doubt the advisability of using an agent which may be so potently destructive and terrible in its action in so harmless a disease.

In the first place, acne is not a harmless disease. Of course it does not destroy life, but it does in many, many instances destroy the social ambition and future happiness of those whom it afflicts. Its disfiguring scars render hideous many a charming face, and it turns an otherwise happy girl into a morbid, sensitive, and melancholic individual—one who would grasp at any straw to be free of her unsightly disfigurement. Acne is not to the afflicted individual a harmless disease, as it may change the whole course of her future career and happiness.

The dangers of the *x*-rays in acne are: 1st, destructive dermatitis; 2d, atrophy of the tissues not dependent upon an active dermatitis; 3d, slowly progressive changes in the skin, which are spoken of in a vague way as possibly occurring years after treatment.

A FEW OBSERVATIONS CONCERNING THE USE OF FORMALDEHYDE AS A PRESERVATIVE IN URINE.

KENNEY has investigated this matter and reports his results in the *Colorado Medical Journal* for February, 1904. He concludes that formaldehyde as an artificial ingredient of the urine will lead to deceptive results in uranalysis, by (*a*) making the urine appear albuminous when it is negative; (*b*) not giving a typical reaction when albumin is present.

The reliability of Introna's test, namely, the use of formaldehyde in albuminous urine as a reagent, is to be questioned, inasmuch as the effect of formaldehyde on negative urine is the same, though to a more marked degree, as that on albumin in solution, the difference in the color and density of the precipitate being immaterial.

He also states that as a factor in the production of a possible pseudoalbuminuria the therapeutic use of atropine is a subject well worthy of extended observation and study.

ERGOT IN TYPHOID FEVER.

LIVINGSTON has already published several papers in which he has lauded ergot as a drug of great value in a number of diseases. In the *New York Medical Journal* of April 16, 1904, he speaks of its use in typhoid fever.

Without presuming to indicate a plan of treatment for this grave disorder, the author freely states that he does not accept the dictum of any one who declares that "typhoid fever is not a disease to be treated by medicines." The object of his paper is solely to call the attention of the profession to what he believes to be the most important single medicinal agent in the treatment of the disease, because its peculiar province is to correct that which underlies every one of the more serious phases which typhoid fever develops.

The solution of ergot which he has thus far found the most satisfactory for hypodermic use is made by dissolving one drachm of solid extract of ergot in one ounce of sterilized distilled (cooled) water. After filtering the solution add two minims of chloroform.

The greatest care should be exercised to secure a sterile solution by having everything made sterile which is used in preparing it. The ergot "lozenges" (each containing one drachm of the extract wrapped in sterilized tin-foil) are convenient in making one's own solution.

The best syringe is an all-glass one, with asbestos packing, the needle being the only metal part. It is filled by removing the piston from the barrel and pouring in the solution.

The dose is one-half to one drachm,

which may be given twice to six times a day or oftener, as indicated in the individual case.

There is more tendency to irritation at the site of injection in fever cases when no fever exists, but such irritation will not be serious if proper attention is paid to sterilization of solution, syringe, and needle, as well as of the skin where the needle is to be introduced.

[We confess that we do not feel very sanguine about this proposition.—ED.]

THE NECESSITY FOR SUPPLEMENTARY MEASURES AFTER THE REMOVAL OF ADENOIDS.

In the *Archives of Pediatrics* for April, 1904, FRIDENBERG in an article on this subject gives the following excellent advice, first asserting that there are experienced and dexterous operators who make no attempt to lay down rules of hygiene after the removal of adenoids, and who seem to think that nasal respiration must be established automatically, as a matter of course. We know that the normal respiratory current is an important factor in regulating the blood-supply of the nasal mucous membrane, and indirectly in affecting the volume and vascular tone of the turbinate bodies, and that compensatory hypertrophy of these bodies may be a remote result of nasal obstruction due primarily to other causes. If such be the influence on the nasal mucosa, a like rôle may well be ascribed to the respiratory current in the neighboring nasopharynx, which is related histologically and physiologically. A failure to restore nasal respiration should favor the reappearance and the luxuriant growth of adenoid masses, where the predetermining cause, the etiological factor of a constitutional tendency to lymphatic hypertrophy, an adenoid status, is already present.

The adenoid operation when thoroughly done removes an obstruction and permits nasal respiration. It by no means insures it. We have to deal, except in the case of very young children, with subjects in whom the mouth-breathing is habitual and inveterate. They have long since forgotten, if they ever knew, that there is such a thing as free breathing with the mouth closed.

Freeing the nasal route will not be sufficient to side-track the impulse toward mouth-breathing; to reëstablish a form of respiration, the nasal, which has heretofore been difficult and insufficient, and hence has come to be instinctively avoided. A training of new inhibitions, encouragement of new volitions, a whole system of coördination is required to effect this change. The children must be admonished again and again to keep the mouth closed, encouraged to take deep and regular inspirations through the nose; and when supervision and the action of the will are in abeyance, as at night, some mechanical means of keeping the mouth closed may be required for a short time after operation. As a general rule we shall find that if nasal respiration during waking hours has once become firmly established, and is sufficient for even unusual demands, such as those of active exercise or the reflex respiratory accentuation following cold ablutions, there will be no mouth-breathing during sleep, and mechanical aids will be unnecessary. Our first aim then is to induce ample and regular respiration; even to increase the demands of the economy for air by exercise and cold sponging without losing sight of the beneficial influence of both factors on appetite, metabolism, and general health, and to see that those demands are met with a closed mouth. For those who are accustomed to nasal breathing, sleep when the mouth is open is almost impossible, and obstruction so disturbing as to awaken them from uneasy and fitful slumbers. Such a habit of reaction we aim to establish in those who have been mouth-breathers, and the first step is insistence on nasal respiration from the moment that the operation has literally opened the way for it. The children must be constantly coached and reminded to keep the mouth closed. Breathing exercises, cold spongings of chest and back, followed by brisk friction, play and exercise in the open air, are all important aids to the establishment of a normal respiratory modus.

Another factor of breathing which has not received the attention it deserves is that of mastication. During the act of chewing, mouth-breathing is normally absent, and respiration becomes automatically nasal. Conversely, where there is nasal obstruction, and mouth-breathing takes place, chewing is hasty, incomplete, and accompanied by labored and intermit-

tent respiration. The children struggle with respiration and deglutition, and neither function is performed satisfactorily. The consequences for digestion may be imagined. One of the simplest ways to reëstablish nasal respiration where there is no mechanical impediment is to insist on slow, thorough, and prolonged mastication. The oftener this is done the better; and as the children obviously cannot be eating all the time, it is important to accomplish the same result independently of the ingestion of nourishment. For this purpose the author does not hesitate to advise parents to allow, in fact to encourage, temporarily, a course of gum-chewing immediately after operation. The "awful habit," which has come in for much, perhaps merited, censure, seems from observation of its effects in a number of cases to be a valuable aid in reëstablishing nasal respiration by preventing mouth-breathing, encouraging thorough mastication, and tending to a certain extent to develop the jaw. The chewing habit is what we wish to establish; with gum, if it must be, but—chewing habit.

RHEUMATIC FEVER.

MOULE contributes a paper on this subject to the *Australasian Medical Gazette* of March 21, 1904. He advises that we first give an aperient, calomel by preference. Next, and very soon after, give sodium salicylate. This is a specific in rheumatic fever if given freely enough. It should be given in doses large enough to drive away the pains and pyrexia in a few hours, and then given in small doses to maintain the action of the drug.

Many men are so afraid of the toxic effects of sodium salicylate that their maximum dose is 10 grains, and they have said they were very much disappointed with sodium salicylate, but as their dosage consisted of from 5 to 10 grains it is not surprising that they got such poor results. The dose is from 10 to 30 grains, and the nearer we get to the maximum the better for our patients.

Sodium salicylate does not merely relieve pain and lower the temperature; it is an antidote to the rheumatic poison. Not only is pain relieved and the temperature reduced to normal, but the joint swellings disappear, the patient feels well, eats well, and sleeps well, and rapidly recovers his strength.

Even such a master as Osler thinks the drug merely relieves the pain. He believes the disease is self-limited, and that the use of salicylate compounds makes relapses more common. He says sodium salicylate may be given in 15-grain doses for eight or ten doses. It seems like blasphemy to say that Osler is wrong, but this the author positively asserts. In one of the author's cases, although 20 grains of sodium salicylate every two hours brought some relief, it was not till 30 grains was given every hour that the disease was conquered; also in another case an increase from 4 grains every three hours to 4 grains every hour soon conquered the disease.

There is no need to be alarmed when toxic symptoms appear. There may be a slow, irregular pulse, a craving for plenty of fresh air, and nocturnal delirium resembling tremens, besides the usual auditory disturbances, but there is no need for fear. Of course there is need for care, but that is not fear. The medical man must have confidence in himself to do his patient justice. When the toxic effects are marked the drug should be stopped for a few hours. The toxic effects soon pass off, and the administration of the drug can be resumed before the disease has had time to return. The medical man should see his patient several times a day when giving large doses, and it is often desirable to give some ammonia and tincture of nux vomica with the salicylate when so doing.

The author believes the disease should be given a knock-down blow by large doses; afterwards it is easy to keep it down by small ones. We should remember that the rheumatic poison is more dangerous than sodium salicylate, and that underdosing will do more harm than overdosing. The Adelaide Hospital Pharmacopœia contains a Haustus sodii salicylatis which has 15 grains in each dose. When the author was house physician there, it was the practice to give this every three or four hours in cases of rheumatic fever, sometimes without much benefit. In one case there was not much benefit till by some mistake the patient got double doses, which promptly cured him. Since that time the author has always increased the dose if it did not soon

give complete relief. He usually gives 30 grains at once, then 20 grains every two hours till pains cease, then 10 grains three times a day. Nausea is often complained of, and the drug has to be stopped for a while. If the drug is given frequently in large doses, nausea will not be troublesome till the disease is subdued, and then the drug may be stopped for a while without the disease coming back. The nausea soon passes off, and the drug can again be given.

ACUTE PNEUMONIA.

The London *Practitioner* for April, 1904, editorially gives the following advice as to the treatment of acute pneumonia. It expresses the belief that the chief danger to be combated is failure of the heart. Warning of this is given by the frequency of the pulse. In ordinary cases of pneumonia this is not very greatly raised, but a rate exceeding 120 per minute is an indication for the use of some stimulant. Alcohol is the usual kind employed, and it is advisable to begin with small amounts, such as two ounces of brandy or whiskey in the twenty-four hours, and to increase them if necessary. Large amounts of this drug are in some cases needed, up to 12 or 16 ounces, but the necessity for these large doses is not common. In grave conditions of heart failure a mixture of ether and ammonia (spiritus ætheris, min. 20; spirit. ammoniæ aromatici, min. 20; tincturæ aurantii, min. 30; aquæ chloroformi, 1 ounce) may be found useful; or strychnine may be given hypodermically in doses of 5 minims of the official solution. In cases marked by profound toxemia the administration of oxygen inhalations may sometimes appear to save life, but the gas must be given freely and almost continuously to have much effect, and recourse to this remedy should not be too long deferred, especially if there be any tendency to cyanosis.

Indications for the use of alcohol are the occurrence of delirium, beyond the slight wandering at night, which is common in all conditions marked by high fever; cyanosis; irregularity of the pulse; and weakening of the tone of the first cardiac sound as heard at the base of the heart. When large or moderate doses of alcohol have been in use, it is unwise to withdraw them suddenly on the occurrence of the crisis, as this may be accompanied by a condition approaching collapse. The alcohol should be only gradually diminished as the patient's strength returns.

There is often constipation in cases of pneumonia. This need not cause anxiety. If the case be seen quite at the beginning (within the first two days) there is no harm in administering a dose of calomel followed by a saline draught; but later in the course of the attack it is inadvisable to make use of purgatives, as there is a tendency to diarrhea at the time of the crisis, and this may be aggravated to a dangerous extent by aperient medicines. Should the patient complain of any discomfort from constipation, an enema may be used, but this is not often needed. The disease being short, failure of the bowels to act during the fever may be neglected.

For the same reason there is usually no need to attempt to reduce the temperature. A high temperature which only lasts a few days is unlikely to do serious damage to the tissues. Tepid sponging is, however, often grateful to febrile patients, and there is no reason to fear to employ this in pneumonia. It may assist the sick man to sleep if done toward night. If hyperpyrexia occur, it must be actively treated by cold sponging or even a cold bath.

TREATMENT OF APPENDICITIS.

The *Clinical Journal* of April 13, 1904, contains a lecture on this subject by Mr. BROOK, of London, in which he gives the following excellent advice:

1. The very great majority of cases will get over the attack if treated on simple medicinal lines.

2. During the quiet period the appendix should be removed so as to obviate another attack.

3. During an attack the patient should be carefully and frequently watched, and on any sign of fulmination operation should at once be done.

4. If there are signs of suppuration an attempt should be made to tide the patient over the fifth day, and then the pus should be evacuated, if possible, without opening the general peritoneal cavity. If the appendix presents in the wound it should be removed, but no elaborate search should be made for it. It may be removed later on.

5. In general suppurative peritonitis use drainage, massive infusions, and calomel.

WHAT IS THE BEST ANESTHETIC FOR CHILDREN?

BENNETT in the *Archives of Pediatrics* for April, 1904, has something to say on this subject. Of chloroform he states that there is a firmly fixed and widespread belief that this is the best anesthetic for children, and the belief is carried to the point of supposing that this agent is less dangerous in them than in adults, or that they possess a special immunity from its dangerous action not enjoyed by older individuals.

This is a grave error, without foundation, and is responsible for the common and dangerous practice of choosing chloroform for children simply because they are children. The writer believes that chloroform is a particularly dangerous anesthetic for children; and this conclusion is based upon the personal observation of many cases of more or less alarming depression of the circulation and respiration during the careful administration of this anesthetic. The induction of anesthesia in children must often be accomplished during crying and struggling, and the great irregularity of the respiration under these circumstances makes it difficult to administer chloroform in the gradual, smooth manner which is so necessary for safety. Sudden overdosage is exceedingly common at this time; the administrator, anxious to quiet the child, is tempted to add the chloroform faster than he would if the patient were quiet, and thus the intake of anesthetic is increased at an alarming rate. If the dropping of the chloroform on the inhaler is doubled and the respiration exaggerated by crying and struggling to three times the quiet respiration, the patient will receive about six times as much chloroform as he should. This is not an overestimate of what often occurs, and it explains that familiar picture of a child struggling under chloroform, suddenly becoming quiet, pale, and deathlike, with failing pulse and respiration. It is a case of either overdosage or too rapid dosage; either the amount administered has been too great, or an amount which would seem reasonable has been taken in too rapidly.

It is necessary, therefore, to proceed with great caution, and to add chloroform at a slower rate during crying, struggling, and exaggerated respiration than during normal breathing. Children generally become quiet quite suddenly during the induction of chloroform anesthesia, and it is a wise plan to suspend the administration for a moment when this occurs and note the effect of the dose which has already been taken in. It will often be observed that a marked and prolonged effect follows the initial dose, and this demonstrates the wisdom of the pause in the administration, as otherwise an unnecessary and perhaps dangerous amount may be given. When it is seen that the initial dose has not been excessive, the administration may be resumed, and as the respiration is now more regular the narcosis progresses with much greater safety.

The most important principles of chloroform administration are the avoidance of a concentrated vapor and an even use of the smallest amount of the anesthetic compatible with satisfactory anesthesia.

While chloroform is not to be recommended as a routine anesthetic for children, ether being preferable as a rule, there are certain conditions which reverse this order. In the presence of acute bronchitis, pneumonia, nephritis, and marked respiratory obstruction, chloroform is usually to be preferred to ether, as the latter aggravates these conditions to a much greater degree than chloroform. Diluted chloroform, as in the A. C. E. and similar mixtures, is safer than pure chloroform, as it yields a more dilute vapor. The mixtures should be administered in the same manner as pure chloroform, drop by drop.

There is a very general belief that ether is an unsuitable anesthetic for children. They are said to take it badly and to be greatly irritated by it, so that the respiration is interfered with by choking, coughing, and by an excessive flow of mucus. These unpleasant effects are due chiefly to faulty administration, and the fault is in using too much ether and forcing it upon the patient too rapidly. Whatever form of inhaler is employed, the ether should be presented very greatly diluted at first, and it should be increased so gradually as to avoid these effects as com-

pletely as possible. In this way ether may be given to children with great satisfaction, particularly if preceded by nitrous oxide, and a transition gradually made from that anesthetic to ether. Nitrous oxide should be used with great caution and sparingly in infants even in this way before ether, and in all children air should be given at an early period.

There is no question whatever of the great safety of ether, and it should be chosen as the routine anesthetic for children except in the conditions above named as rendering chloroform preferable. Such circulatory depression as is commonly caused by chloroform practically never results from ether; on the contrary, the circulation is almost invariably markedly stimulated.

THE TREATMENT OF RHEUMATOID ARTHRITIS.

The *Birmingham Medical Review* for March, 1904, contains an article on this topic by PERRY. He expresses the belief that massage is of the greatest value in the treatment of rheumatoid arthritis, of whatever form. In the more acute conditions the massage should be general, in order to combat, as far as possible, the marked general muscular wasting which is so characteristic of this acute form of the disease. In the more chronic conditions the massage need only be applied to the affected joints and their respective muscle groups. The relatives of the patient can, as a rule, be taught to perform the necessary massage, except in the acute cases.

A variety of drugs have strong supporters. The writer placed arsenic and the iodides in the front rank. Luff, however, considers that guaiacol carbonate and potassium iodide are the most valuable. Of the guaiacol carbonate he gives at first five grains three times daily, and increases it to 15 to 20 grains for each dose. The writer's experience of guaiacol, or its carbonate, has not been satisfactory, and he attributes a greater value to the iodides (more especially the iodide of iron) and to arsenic. The syrupus ferri iodidi may be given in drachm doses for several months at a time; it does not, as a rule, produce the depression which so often follows the exhibition of potassium iodide. In the subacute and chronic cases it is believed to be a good plan to alternate the arsenic and iodide treatment, giving a drachm of the syrup of the iodide of iron or liquor arsenicalis 5 minims, three times daily during alternate periods of two months. It is frequently stated that salicin and the salicylates are not of value in the treatment of rheumatoid arthritis. With this the writer does not agree, and while they certainly have no power over this disease comparable to their action in rheumatic fever, he believes they have a distinct use. In the most acute cases the salicylates usually give distinct relief to the articular pain, which may be severe; there is no evidence that the progress of the disease is checked, but the relief of pain is of value. In the subacute and chronic cases the writer has found it is useful to give a nightly dose of sodium salicylate—gr. x, xx, or xxx—according to the age of the patient. This relieves the night pains, which are often troublesome; one should bear in mind the fact that the drug has a slight but distinct narcotic effect. Upon the whole he would give the iodide of iron the chief place in the treatment of rheumatoid arthritis.

The treatment by massage, vapor baths, or superheated air is also mentioned in this paper. Electrical baths have also many advocates. Dr. Lewis Jones states that in his opinion alternating currents from the induction coil, or from an alternating dynamo-supply, seem to be the most useful treatment. He considers that electricity offers far the most valuable treatment. For the relief of articular pain various anodyne liniments of aconite, belladonna, menthol, or chloroform may be used with advantage. The following is a useful paint:

℞ Menthol, 1 part;
Chloral hydrat., 2 parts;
Chloroformi, 3 parts.

Ft. pigment.

Blistering may be of value if the articular pain is severe, or the synovial effusion considerable. A series of small blisters applied round the joint on successive days is perhaps the best method of application. The absorption of articular fluid may often be assisted by elastic pressure in the form of elastic webbing bandage. Splints can rarely be desirable, except when a joint is completely disorganized, as the

main object of treatment should be the preservation of the motility of the joint whenever practicable.

CORNEAL ULCERATION DUE TO NASAL INFECTION.

ZIEGLER, of the Hills Eye Hospital of Philadelphia, in *American Medicine* of April 9, 1904, says that the nasal origin of this affection indicates the treatment to be applied. Irrigation of the nasal chambers with an antiseptic or saline solution should be carefully carried out. If pus is present, hydrogen dioxide (diluted 1 to 4) should be dropped into the nostril by the ordinary eye-dropper, two or three times a day, and allowed to trickle back into the throat.

Local applications for the reduction of the turgescent membranes are often necessary. A weak solution of cocaine (one to two per cent) may be applied with cotton wrapped on a wire applicator. This may be followed by an application of

> Camphor,
> Menthol, of each 65 gm. (10 gr.);
> Tr. benzoin comp., 7.5 Cc. (2 fl. dr.);
> Boroglycerin (50 per cent), q. s. ad 30 Cc. (1 fl. oz.).
>
> Apply to nose daily, or on alternate days.

If any more serious nasopharyngeal lesion is present the patient should be promptly referred to the rhinologist for relief. Enlarged tonsils or adenoid vegetations in the pharynx, and septal spurs, polypi, or other nasal growths should have surgical attention. If the ocular condition has become chronic it may be necessary to reduce the hypertrophied and turgescent turbinates by galvanocauterization. The object to be accomplished by such a procedure is threefold—to promote free antral drainage, to secure freedom from pressure contact, and to obtain free nasal breathing.

The lacrimo-nasal duct may be active or passive in the transmission of germs. It may contain septic secretions without a show of pus, and the amount escaping through the puncta into the eye may be so small as to be practically invisible. Even lacrimation may be absent. If the nasal swelling is reduced the turgid condition around the valve of Hasner will be lessened, and the secretions will have a natural downward drainage. Ocular irrigations may aid this somewhat. Pressure on the membranous duct will often empty its contents. The small cannula of a lacrimal syringe may be introduced into the puncta and very gentle irrigation attempted. If these measures fail it is evident that a patulous tear duct must be secured either by incision or by rapid dilatation. Such surgical intervention naturally demands the services of the ophthalmic surgeon.

As incision often leads to cicatricial contraction, the writer prefers the method of rapid dilatation without incision, which he has practiced for some fourteen years past. This is done by first introducing a needle probe into the lacrimal puncta and passing it through the membranous canal to the bone. It is then withdrawn, and the author's conical dilator with a maximum size of a No. 10 probe is passed through the previously stretched membranous canal, and thence by gentle force through the bony canal into the nose.

While the general shape of the dilator is conical, it is rounded or bellied just above the point, which allows it to dilate so rapidly that the point does not engage, and the dilator never becomes wedged, as with a simple cone. The needle probe has the same quick expansion just back of the point, which is sharper than that of the dilator.

The advantages of this method are the avoidance of cicatricial contraction about the lacrimal puncta, and the preservation of capillary and siphonic action, thus directing the current of lacrimal drainage toward the nasal orifice. A repetition of this procedure is seldom required, and the repeated use of probes is thus avoided.

When, however, blennorrhea of the sac, lacrimal abscess, or marked caries is present, incision should be promptly made, rapid dilatation performed, and a lead style inserted. This should remain for a week, and be followed by lacrimal irrigation.

In very exceptional cases of corneal infection it may be necessary to prevent the regurgitation of these septic secretions by sealing up the lacrimal puncta with the galvanocautery point, or with a crossed suture.

In cases of simple and phlyctenular ulceration of the cornea the treatment to be employed is somewhat similar. A mild,

soothing lotion should be freely applied to the eye, consisting of

Sodium biborate, 32 gm. (5 gr.);
Boracic acid, 65 gm. (10 gr.);
Rose water,
Distilled water, of each, 30 Cc. (1 fl. oz.).
Drop in the eye freely four times a day.

If the iris is at all sluggish atropine should be instilled. If the pupil dilates freely the further use of atropine should depend on circumstances. Calomel, or iodoform with compound stearate of zinc, may be insufflated or used in an ointment. Hot stupes for ten minutes three times a day may be beneficial. A pressure bandage is occasionally useful, but should be closely watched, as the added warmth may increase the bacterial growth.

FEMORAL HERNIA—RADICAL CURE.

The following method of operating NICOLL (*Scottish Medical and Surgical Journal*, December, 1903) originally adopted for the more severe and unfavorable cases of femoral hernia only, but has come to regard the precision of the closure effected by it as sufficient inducement to extend its practice to all cases.

The hernial sac is exposed by either a vertical or transverse incision; the sac is freed from the surrounding tissue; it is then split longitudinally in its middle line and emptied of its contents. The neck of the sac is freed from the transversalis and the iliac fasciæ for one inch around the abdominal aspect of the ring. The sac is then bisected longitudinally from fundus to neck, and an aperture is made in one half near the neck, through which the other half of the sac is inserted, thus interlocking the two halves. The whole sac is reduced through the femoral ring into the extraperitoneal space previously cleared out for it by detaching its neck from the abdominal aspect of the ring. Where the sac is unnecessarily large, part of it may be cut away before reducing it through the canal. An incision is then carried down to the bone from the femoral vein along the pubic ramus to the region of the pubic spine. This divides the pubic portion of the fascia lata, the origin of the pectineus and the periosteum. The periosteum is next reflected to a limited extent. Two drill-holes, one-half inch to one inch apart, are made in the upper edge of the pubic ramus. A loop of stout catgut is passed through one of these drill-holes and the loop is divided. Each end is then passed as a mattress suture through Poupart's ligament, and both ends are brought out through the second drill-hole. Each loop is tied separately over the front of the bone, thus bringing Poupart's ligament down to the posterosuperior surface of the bone and fixing it firmly in this position, constituting what is in effect an extension outward of Gimbernat's ligament, and absolutely closing the femoral ring to whatever extent may be desired. The degree of occlusion is regulated by the position of the sutures in Poupart's ligament, the sutures being tied firmly in all cases. The closure is made doubly secure by uniting the detached margin of the pectineal fascia and the pubic portion of the fascia lata to the anchored Poupart's ligament.

EXCISION OF THE PROSTATE AND PROSTATIC URETHRA FOR SENILE ENLARGEMENT OF THE PROSTATE.

During the last two years MOYNIHAN (*Annals of Surgery*, January, 1904) has operated upon a series of cases, twelve in number, of senile enlargement of the prostate and prostatic urethra. Of the twelve cases, one proved fatal. The patients varied in age from fifty-nine to eighty-eight years. In four of the patients a stone was found, and upon one of these patients suprapubic operation had been performed for stone fourteen years previously.

The operation is performed in the following manner: The bladder is irrigated thoroughly with one-per-cent solution of carbolic acid, and finally filled with ten or twelve ounces of this fluid. A rubber glove is worn on the right hand, so that after the rectal manipulations are over the removal of the glove will leave a clean hand with which to continue the operation. The bladder is opened above the pubes, and the left forefinger introduced. The solution is allowed to escape from the bladder, and silkworm-gut sutures are passed through the whole thickness of the abdominal

wall and through the cut edges of the bladder. They are tied and left long, thereby fixing the bladder to the abdominal wound and preventing any undue tearing or stretching of the bladder by the subsequent manipulations. The sutures are not removed until the third day, by which time the bladder will be found firmly fixed to the posterior surface of the parietes. With the left forefinger in the bladder, a snip is made with a pair of sharp-pointed scissors in the mucous membrane of the trigone, immediately behind the internal meatus. The tip of the finger then deepens and gradually enlarges this small opening, until the mucous membrane is felt to be loosened a little. Two fingers of the right hand are passed into the rectum, and between these and the thumb pressed into the perineum the prostate is held firmly, while with the left forefinger the stripping of the prostate is commenced. The surface of the lobes is cleared rapidly, the opening in the mucous membrane is torn larger, until it completely surrounds the meatus, and finally the anterior portion of the prostatic urethra at its junction with the membranous portion is torn through, after the prostate is elsewhere entirely free. The enucleation is performed easily and rapidly as a rule, in from two to five minutes. The larger the prostate, the easier the stripping. The fingers of the right hand are now removed from the rectum, the glove stripped off by an assistant, and a pair of volsella forceps passed into the bladder to seize and remove the loosened prostate. There is very little bleeding as a rule, though in two instances there was free hemorrhage for twenty to thirty minutes. A catheter is passed and the bladder freely flushed with a hot solution of carbolic acid. It is astonishing to note what a very small gap seems to be left in the base of the bladder.

There are often severe pains, paroxysmal in character, for a few hours after operation, and the patient frequently complains of an insistent and compelling desire to pass water. A morphine suppository or hypodermic injection of morphine will give comparative ease. At the end of forty-eight hours the tube is removed from the bladder, and on the fourth day, and on each succeeding day, a catheter is passed and the bladder is washed freely with diluted carbolic acid. On the seventh day the catheter is tied in, and a drag is placed on the suprapubic wound. Every morning the drag is removed and the bladder again flushed. The catheter is not removed for five or six days, and a new one is then introduced. The urine ceases to pass through the wound about the end of the third week, and by the end of the fourth week, or occasionally not until the end of the fifth week, the patient is able to pass urine spontaneously, at natural intervals, without discomfort or difficulty, and the wound is entirely closed.

If there has been cystitis, urotropin or helmatol should be given, in 10- to 15-grain doses, three or four times daily. In two cases where the cystitis had been excessively severe, and the urine most foul, after the bladder had been washed out a stream of oxygen was passed through the catheter, and the bladder flushed out. Over the suprapubic wound a tight-fitting, impervious cap was placed, having a small leak to allow the escape of gas. In this way the healing of the wound was certainly hastened.

It is a serious matter to keep these old patients in bed. They should be allowed to sit up within two or three days after the operation, and they should be hedged around with every care and comfort.

CHORDEE PREVENTED BY PROSTATIC MASSAGE.

PETERKIN (*New York Medical News*, Dec. 26, 1903) claims that massage of the prostate and seminal vesicles is an efficient method of preventing erections, by relieving overdistention. As a result the pain of chordee is obviated, and congestion, a predisposing factor to the further extension and continuance of the gonorrheal infection, is lessened.

Before applying massage the patient voids his urine, and the anterior urethra is irrigated thoroughly through a short nozzle with some mild antiseptic solution, after which the bladder is filled with the same solution. The solution in the bladder mainly serves the mechanical purpose of cleaning the posterior urethra before and after massage, and acts as an aid to massage by distending the bladder so that when pressure is brought to bear

upon it, with one hand, the prostate is brought nearer the massaging finger.

Usually one or two such treatments a week is sufficient.

ACUTE OTITIS MEDIA TREATED BY ASEPTIC DRAINAGE.

The principles of treatment of acute otitis media by aseptic drainage as given by GRADLE (*Journal of the American Medical Association,* Jan. 2, 1904) consist of paracentesis as soon as the diagnosis is made, and continuous absorption of the discharge by an aseptic gauze drain in the meatus and a large dressing over the auricle. After sterilization of the meatus and auricle by means of carbolic acid solution the sterility of the gauze is assured by a liberal use of powdered boric acid in the dressing. The external gauze dressing is changed as soon as moisture shows, while the tampon in the meatus may be left twenty-four to forty-eight hours at a time.

Among seventy-eight cases treated by Koerner, the time required for healing was seven days after paracentesis done on the first day; nine days after paracentesis done on the second day; and up to twenty-six days after paracentesis done on the sixth day or later.

The proof of efficient treatment is afforded by the character of the discharge. In cases in which the drumhead is tapped earlier than forty-eight hours after the onset, a clear fluid always is found. By means of a properly absorbent gauze dressing reaching to the drumhead and changed sufficiently often to remain absorbent and sterile, this serous discharge can be kept serous; its change to a purulent fluid is due to a faulty technique. No other treatment prevents the discharge from becoming purulent except in the mildest cases.

The author's invariable experience has been that after the climax in the amount of discharge, within the first thirty-six to forty-eight hours, the secretion diminished steadily and progressively to an uneventful recovery, provided due care was taken to keep it serous. The length of time in some forty cases in which the method was employed varied from five to twelve days in the majority, but exceptionally ran to fifteen.

If through any neglect the discharge becomes purulent, this progressive improvement is interrupted, as noted by the unchanged rate of secretion, and hence longer duration, greater discomfort, and possibility of mastoid complication. In cases of purulent discharge due to late perforation, or insufficient care in the changing of the dressing, gauze drainage has proved as satisfactory as any other mode of treatment.

BRONCHOSCOPY.

Direct observations of the larynx and trachea are recent and rarely used methods. Kirstein first showed direct laryngoscopy, from which originated direct tracheoscopy, and finally Killian developen bronchoscopy. With straight tubes of different calibers and lengths he showed that the air-passages could be explored far beyond the bifurcation of the trachea. An electric light fixed to the bronchoscopic tube is very useful, but it is not absolutely necessary, as shown by a case reported by SCHWYZER (*Annals of Surgery,* February, 1904), in which the greater part of the examination was made with a common search-light and a common head mirror. While it was not as convenient, the light was good and sufficient.

The bronchoscopic tubes are connected with a solid handle, with which quite a little force can be used in turning the bronchoscope into the desired direction. Sponge-holders, a fine suction tube, some hooks, and several kinds of forceps constitute the armamentarium. The instruments are as well adapted for esophagoscopy. The examination can be done either directly through the mouth and larynx (the tubes being up to 50 centimeters long), or through a tracheotomy wound. The head has to be thrown far backward, so as to allow of introduction parallel to the axis of the tube.

In the writer's case, a woman forty-eight years of age had inspirated a piece of bone five weeks previously. A large goitre prevented bronchoscopic examination through the mouth and larynx. A strumectomy was performed as a preliminary operation, and the wound was closed, except for a small central opening, through which a strip of iodoform gauze was introduced down to the trachea.

Two weeks later the trachea was opened by an incision 2 centimeters long, the lower end of which was 3 centimeters above the manubrium sterni. After making the incision the trachea was anesthetized with a solution of 20-per-cent cocaine in 1:10,000 adrenalin. The tube employed measured 15 centimeters in length, and had a calibre of a No. 24 bougie. The tube was inserted into the trachea and the bifurcation was made visible. There was much lively and even violent pulsation going on around the bronchi. This everlasting motion and activity in the chest was very impressive and led to the utmost care in handling the instruments. The pulsation was transmitted from the arch of the aorta, which rides on the left bronchus, and from the pulmonary arteries, which are in even closer proximity to the bronchi. The motion is most pronounced in the left bronchus, and is not perceptible far down in the right bronchial tree. Toward the periphery, respiratory motion comes more into play. There is room for the respiratory exchange of air around the bronchoscope, although lively breathing goes on through the tube.

Examination showed that the foreign body was not lodged in the left bronchi of the first and (most probably) second order. The bronchoscope was partially withdrawn and introduced into the right bronchus, which was found to be reddened and contained much mucopurulent secretion. These changes served as an important guide. After following the right bronchus to its end, the tube being introduced for the distance of six inches from the tracheal opening, a foreign body was discovered, grasped with forceps, and removed. It was surprising to note how readily the exploring tube could be introduced into the different bronchi. The bronchi give way to pressure and take a straight course over the inserted instrument because they are in loose, soft lung tissue which yields readily. When the division of a bronchus is reached, tilting of the bronchoscope allows the entrance into the desired side, and as soon as the channel is entered the tube may be pushed forward, if it is done under constant control of the eye.

In the writer's case the patient located her pain to the left of the heart apex region, but moist râles of medium size over the right lower anterior portion of the chest, and there only, served as a clue to the location of the bone. The patient was able to leave the hospital three days after the operation.

While such operative measures are not in the reach of every general practitioner, the surgeon who can do a fairly satisfactory cystoscopic examination in male patients, or even in women, is sufficiently skilful to handle Killian's tubes for the inferior bronchoscopy. The use of straight tubes *per vias naturales* into larynx and trachea is a hard ordeal for the patients in most cases. Inferior bronchoscopy, however, is not as heroic a measure as it might appear.

Where it is possible, bronchoscopic examination ought to precede the removal of foreign bodies from the bronchi, and the manipulations and the extraction ought to be done under the guidance of this instrument, thereby avoiding unnecessary injuries. In the more difficult cases the bronchoscope will be the only means of accomplishing a successful extraction.

THE PREVENTION OF POSTOPERATIVE HERNIA.

WINSLOW *(Annals of Surgery,* February, 1904) has made a careful study of the anatomy of the important structures of the abdomen, and the various modes of approximating these structures in the closure of abdominal incisions in order to prevent or cure hernia of the belly wall.

As a result of his study he formulates the following conclusions: (1) The aponeurotic coverings are the chief supporting structures of the abdominal wall; (2) their approximation by overlapping, in doubling the strength of the aponeurotic layers, doubles the strength of the abdominal incision; (3) it is wiser to prevent hernia by employing this principle of closing all abdominal incisions than to be forced to use it later to cure postoperative hernia.

The following technique is employed for the prevention of abdominal herniæ after incisions made in the middle line or for attacking appendix, gall-bladder, etc.:

The integument and subcutaneous tissue are incised down to the aponeurosis. The aponeurosis is bared by reflecting back the skin and fat for a space of an inch and a half on each side of the in-

cision. The aponeurosis is incised in the same line and directly beneath the skin incision, and two flaps, one on each side of the incision, are raised from the underlying muscle by blunt dissection. One flap of aponeurosis is freed for an inch or so from its cut margin; the other for about half that distance. The incision through the rest of the abdominal wall is completed as usual. In closing, the peritoneum is approximated by a continuous suture. It may be wise in weak, fatty walls to introduce two or three retention sutures placed well back from the margins of the wound and penetrating all layers above the peritoneum. The muscle, if well developed, is coapted by interrupted sutures. Then the cut edge of the aponeurotic flap, which was but slightly freed, is stitched to the base of the opposing flap by interrupted or mattress sutures. The free margin of the opposing flap is lapped over the other one and stitched down to the surface of the aponeurosis by interrupted or continuous sutures. A drain of gauze wrapped about with rubber tissue, or a roll of rubber tissue alone, leading from the lower angle of the wound, should be inserted between the fat and aponeurotic layer in cases where there has been much manipulation or where the adipose tissue is thick. The skin may be coapted with the Michel clamp, buried silver wire, or other suture. The retention sutures are of silkworm-gut; medium catgut is used for the lower layers, plain in the case of the peritoneum, chromicized for the muscle and aponeurosis. The retention sutures, if used, are employed merely to support the wall until the dangers of vomiting and meteorism are passed and union has begun.

TOXICITY OF COCAINE DIMINISHED BY THE ADDITION OF ADRENALIN.

By adding a 1:1000 solution of adrenalin to ½-per-cent solution of cocaine, in the proportion of ten drops to ten cubic centimeters, Foissy *(Tribune Médicale,* Dec. 12, 1903) found that the toxicity of the latter was greatly reduced, while its anesthetic and vasoconstricting powers were materially increased. In 149 cases in which 2 to 10 cubic centimeters of this solution was employed for local anesthesia in inflamed tonsils, no sign of poisoning was ever observed, while similar doses of cocaine alone frequently caused pallor, sweating, loquacity, muscular tremors, and even delirium, though no serious results.

In experiments on guinea-pigs the writer was able to inject eight to fifteen times the toxic dose of cocaine, when thus combined, without fatal results or even serious symptoms.

OLD DISLOCATIONS OF THE SHOULDER.

Keetly (*Lancet,* Jan. 23, 1904) states that the usually accepted limit for even attempting reduction of a dislocated shoulder is three months. The symptoms of an old, unreduced dislocation differ in some respects from those of a recent one; instead of swelling there is wasting of the deltoid, and the absence of the head of the humerus in the glenoid fossa is very obvious. The projection of the elbow from the side is less, and the range of movement of the joint and of the scapula on the trunk is increased. The *x*-rays are often useful in making a diagnosis.

If no complications coexist the prognosis of dislocations two to four weeks old is absolutely favorable; up to the ninth week very good; after the ninth week bad, unless a cutting operation be performed.

The administration of chloroform in these cases is especially dangerous. Either no anesthetic should be used, or the patient should be fully under its influence before reduction is attempted. The anesthesia should never be pushed during the operation. If the breathing stops while strong traction is being made, the surgeon should desist at once.

The axillary vessels are often injured, as many of these patients have diseased vessels due to advanced age, dissipated habits, etc. Nerve injuries are comparatively rare.

The choice of treatment in the old cases lies in making the best of the new abnormal joint by exercise, massage, and the attempt to effect reduction by manipulation and extension, open operation, or excision.

Reduction without cutting may be tried reasonably up to the fourth month, except in old people with atheromatous arteries.

If Kocher's method fails, extension and

circumduction may be tried with Skey's knob, or the author's fracture extension machine. The structure especially endangered is the axillary artery. Another method of extension is continuous and elastic extension by means of air pads in the axilla, and Stimson's couch, which is perforated to allow the arm to pass through, a ten-pound weight being attached to the hand.

It is difficult to preserve asepsis in open operations because the operation is prolonged, the wound is large and deep, the traction is forcible and prolonged, the displaced head vacates a large space which does not fill up, drainage is contrary to gravity, several assistants are required, there are numerous chances of infection, and the patients are usually "bad subjects."

When it is found necessary to excise the humeral head, the stump should be wrapped in gold leaf for a few weeks, to prevent adhesions; the shoulder should then be opened and the gold leaf removed. After the wound has healed passive movements should be begun, but abduction should be avoided for months.

CONGENITAL PHIMOSIS—NON-OPERATIVE TREATMENT.

ROJANSKI (*American Medicine,* Jan. 30, 1904) makes a plea against the indiscriminate use of the knife for congenital phimosis. Circumcision, excision, incision, are all in use, but the same results can be obtained by bloodless treatment. His own method is outlined as follows: The mother is instructed to irrigate the preputial sac with a weak antiseptic, preferably a two-per-cent solution of boric acid, or in the presence of congestion or irritation, lead-water may be substituted. These injections are given from two to three times daily by means of an ordinary rubber ball syringe holding half an ounce of fluid. The tip is inserted into the sac and the contents slowly forced out, distending the prepuce. After two to three weeks of such treatment the prepuce can be retracted almost behind the glans. At this stage a dull probe is introduced between the glans and the prepuce and the remaining adhesions are gently loosened. The cure is now complete, and may be made permanent by continuing the irrigations some time longer in order to prevent the formation of fresh adhesions.

TUMORS OF THE RETROCAROTID BODY.

There have been recorded only eleven cases of tumors of the retrocarotid body, previous to one recorded by RECLUS and CHEVASSU (quoted in the *Medical Chronicle,* December, 1903). Their etiology is as obscure as that of tumors in general. They are met with in young adults, the ages of the patients varying from seventeen to thirty-three years. Normally the carotid body increases in size from birth until puberty, when it commences to atrophy, and von Heinleth considers these tumors as due to a persistence of the original growth after puberty—that is, that they represent merely an exaggerated condition of the normal carotid gland. Anatomical, histological, and clinical evidence, however, negative this hypothesis. Recent researches have shown that the carotid body is situated *behind* the bifurcation of the common carotid, and not between the origins of its two great divisions; it is therefore "retrocarotid" and not "intercarotid" as formerly designated. Its upper portion is always more intimately connected with the internal than the external carotid vessel, and it is enclosed in a dense fibrous sheath common to it and the bifurcation of the vessel. As it increases in size the gland grows forward between the two great branches of the common carotid, and expands into a mass situated in front of the bifurcation, giving these tumors a characteristic dumbbell shape. Their consistence is rather soft and elastic, their color resembles that of the thyroid gland, and they have a complete capsule. The arteries are lodged in grooves, which may be of such a depth that the vessels appear to be surrounded by the neoplasm. The vessel walls are unaltered, their caliber remains the same, and their branches arise as usual. The internal jugular vein was firmly adherent to the posterior part of the tumor in six instances, likewise the vagus in three, the sympathetic in two, and the hypoglossal in one. Glandular invasion by the growth has only occurred in one case.

Microscopically, the appearances in all the cases have been similar, the tumors belonging to the class of endotheliomata. The existence of the tumor is discovered by chance, and it has usually been looked upon at first as an enlarged gland. It

forms a swelling in the side of the neck at the seat of the carotid bifurcation, the overlying skin preserving its normal characters, and the anterior border of the sternomastoid crossing its superficial aspect obliquely. It pulsates synchronously with the pulse, but there is no true expansile pulsation—merely a simple elevation of the tumor by the underlying vessels. The tumor is freely movable in a transverse axis, scarcely, if at all, in the vertical direction. Auscultation yields a bruit, which is not different from that audible in the common carotid below the tumor.

Its growth is slow, and eight out of the eleven cases were not operated upon until four to sixteen years from their first being noticed. As a rule they are benign tumors; of the eleven cases, eight were certainly so; two were doubtful; and only one was certainly malignant. All were submitted to operation, but in only three was it possible to remove the growth without sacrificing the carotid bifurcation. Of the eight in which this was carried out, two died, one from hemorrhage and one from bronchopneumonia, a mortality of 25 per cent. Of the six recoveries, in one hemiplegia with aphasia supervened on the fifth day, and the others all had some permanent ill effect left—paralysis of the vocal cord, of half of the tongue, of the sympathetic, etc. These results absolutely condemn resection of the large vessels and nerves of the neck for tumors of the retrocarotid gland, and as it is impossible to ascertain beforehand which tumors will be capable of dissection, the writers advise that operative interference should only be attempted when the tumor causes serious functional troubles or shows signs of becoming malignant.

SOME COMPLICATIONS OF ARTIFICIAL ANUS.

A frequent complication of artificial anus, according to GERAUD (quoted in the *Medical Chronicle,* December, 1903), especially when established surgically, is a prolapse either of mucous membrane only, or of the intestine itself. The former is aided by the laxity of the submucous tissue, and is at first easily reducible, but difficult to maintain reduced. Its surface becomes chronically irritated by contact with the clothing or with the dressings, thickened from chronic lymphangitis, and superficially excoriated. Prolapse of the intestine may be single or double, according as one or both ends of the bowel become everted through the artificial anus. A single prolapse consists of two cylinders of intestine, the outer having its mucous membrane external, the inner internal, while the two serous coats are in apposition. Adhesions between these latter render the prolapse irreducible. The margin of the artificial anus is indurated, contracted, and undilatable, and may become an agent in producing strangulation of the prolapsed bowel. The greater the contraction the less chance will there be of the occurrence of a prolapse, but the greater the risk of its strangulation.

In a single prolapse there is only one opening for the escape of feces, seated at the apex if it be the upper end of the intestine which has become everted, at the base in the case of the lower end. When the prolapse is double either of two conditions may be present: (1) when the bowel has been divided transversely to form the artificial anus and both ends fixed in the wound, a prolapse may occur from each end, each being distinct from the other and diverging from it; (2) the eversion of the two ends may constitute a single cylinder, parallel to the abdominal wall, to which it is connected by a short pedicle, giving it the appearance of the letter T. An orifice is present at each end of the horizontal branch. This form of prolapse only occurs when the artificial anus involves the wall of the gut opposite to the mesenteric attachment.

The chief complications to which a prolapse is liable are irreducibility, ulceration, strangulation, and very rarely the occurrence of a hernia of small intestine between the two cylinders constituting the prolapse. In establishing an artificial anus, the chief points to prevent a subsequent prolapse are: (1) to injure the structures of the abdominal wall as little as possible; (2) to make the smallest opening in the parietes that will suffice; and (3) to suture the bowel carefully to the margin of the opening. When a prolapse is fully established, it is best to resect the prolapsed bowel flush with the abdominal wall and fix it to the margin of the artificial anus, as in the procedure of Mikulicz for rectal prolapse.

TYPHOIDAL PERFORATION OF THE BOWEL—SURGICAL TREATMENT.

CAZIN (*La Semaine Médicale,* No. 1, 1904) found on record 358 cases of perforation of the bowel in typhoid fever in which operation was performed. The list includes one from his own experience and Keen's 158, as also statistics of Mauger, Cariès, Junqua, Pédarré, and Elsberg. Of the entire number, 107, or 29.88 per cent, recovered, and 251, or 70.11 per cent, died. Only 49 were reported in France, with 40 deaths and 9 recoveries. The Americans lead in their intrepidity and promptness in operation. Of the 358 cases, 228 were intestinal operations; in 130 the abdomen was opened and drained.

In making a diagnosis great stress should be laid on sudden pain, boardlike hardness of the abdominal wall, and dulness; irregular small pulse and fall in temperature are also important. Leucocytosis is of secondary importance, as it is very inconstant and tardy.

If an error is to be made it were better to make it on the side of operation, as this is not necessarily fraught with ill results; the operation should be performed at least as soon as the diagnosis is made. In 48 unsuccessful cases the time intervening between perforation and operation was mentioned; in 38 operation was performed during the first twenty-four hours, in 6 on the second day, and in 4 on the third day. General narcosis seems to have been preferred to local anesthesia, and usually a relatively small quantity of the anesthetic was necessary. In 219 cases the site of operation was mentioned; 123 times a lateral incision and 26 times a median incision was made. The perforation usually is located in the lower 50 centimeters of the ileum; occasionally the appendix, cæcum, or colon is affected. A Lembert silk suture is preferable to catgut; the latter is absorbed too quickly, and by giving way has produced fatal termination. It is not necessary to freshen the edges of the perforation or resect the ulcerated zone, as this prolongs the operation unnecessarily. The sutures should be passed through tissue some distance from the border of the perforation on account of the great friability of the structures. Two layers of suture usually will secure perfect occlusion. If further perforation is threatened around the ulcer, packing strips of gauze around it to wall off infection is better than resection of the bowel. In diffuse peritonitis the abdominal cavity should be rinsed with hot saline solution. Sufficient drainage should be inserted in all cases.

TREATMENT OF PERINEAL LACERATIONS.

HEGAR (quoted in *Medical News,* Jan. 23, 1904) speaks strongly against the firmly rooted custom of suturing tears at once or soon after the termination of labor. An analysis of a large number of cases proves that postpartum fever is more common in these cases, and removal of the stitches often will be followed by a rapid fall of temperature. Waiting twenty-four hours is worse, since the lochia are more infectious and the patient is disturbed in her much needed rest. It is not commonly known that the functional results are excellent in 77 per cent of the cases where the healing is left solely to nature. Sometimes the wound edges are not accurately apposed, leading to slight distortion, which does not interfere in any way. Suturing, however, may be done where the wound is simple and without contusion or infiltration, and where the general condition is good and strict asepsis can be practiced. In other cases it is better to wait three months.

RADICAL CURE OF INGUINAL HERNIA.

In children, especially when the hernia is of the congenital variety, BEGOUIN (quoted in the *Medical Chronicle,* December, 1903) believes it is sufficient, after separation and ligation of the neck of the sac and returning the stump, simply to bring the pillars of the external ring together with a few catgut sutures. In adults, however, some care must be expended upon the restoration of the abdominal wall. While admitting that Bassini's method yields excellent results, the author considers that it occupies a considerable time in its performance, that it is a very delicate procedure, and that it is possible to obtain results as good or better by simpler means. Bassini's operation respects the normal conformation of the inguinal region to too great a degree, since he allows to remain for the passage of the cord a canal with two openings, whereas a single simple orifice

is all that is actually requisite. The author advocates a form of procedure which he associates with the name of Mugnai, in which, after treating the sac as in Bassini's method, the cord is relegated to the lowest part of the wound, the internal oblique and transversalis muscles and the conjoined tendon are sutured to Poupart's ligament, and the cut edges of the external oblique aponeurosis are sutured together over these, leaving just sufficient room at the lower and inner angle to allow of the exit of the cord. Thus the inguinal canal and deep inguinal ring are suppressed, and the cord passes out directly at the site of the superficial inguinal ring—a very resistant site, surrounded by solid and inextensible fibers. This operation is much simpler than Bassini's, and can be performed much more quickly.

EPIGASTRIC HERNIA.

GREENE-CUMSTON (quoted in the *Medical Chronicle,* December, 1903) defines epigastric hernia as that which develops in any part of the linea alba between the umbilicus and the xiphoid cartilage. The statistics of Berger show its frequency to be 1.37 per cent of all cases of hernia; it is much more frequent in the male sex and in the working classes, and it is not uncommon to find more than one hernia in the same subject. Etiological factors are injury, a diastasis of the recti abdominis, congenital or acquired, and the development of subperitoneal lipomata. These latter separate the interlacing fibers of the linea alba, and thus allow the formation of a hernial ring; and as they remain connected to the peritoneum by a kind of pedicle they exercise a constant traction upon it, and tend to draw it into the hernial ring, thus forming a hernial sac. The lateral angles of the ring are at first more or less acute, while the upper and lower are obtuse, giving it the shape of a lozenge with the long axis horizontal; later, however, the form becomes more oval. The hernial contents usually consist of omentum, occasionally of the small intestine, rarely the large intestine, and very rarely the stomach.

The symptoms usually associated with epigastric hernia are difficulties of digestion, constipation, vomiting, and intermittent pains, the latter due, in all probability, to the traction exerted by the contained omentum upon the colon and stomach. Strangulation is not a common complication of epigastric hernia. Relief of symptoms up to a certain point can be given by the wearing of an abdominal belt, but the only method of radical cure is by an operation involving removal of the subperitoneal lipoma, with separation of the sac, ligation of its neck, and obliteration of the hernial ring.

USE OF ATROPINE IN INCARCERATED HERNIA.

HAGEN (quoted in *Medical News,* Jan. 23, 1904) has discovered that the physiological activity of atropine will readily explain the efficiency of this drug in incarcerated hernias, if the pathology of these be considered. In every incarceration there is a paresis of the musculature of the intestinal loop, accompanied by a reflex tetanic irritation of the external oblique muscle. Since atropine first stimulates muscles supplied by sympathetic nerves, it will tend to overcome the paresis; its subsequent paralyzing action will then be directed against the tetanus of the abdominal muscle. The author proceeds as follows: Half a cubic centimeter of a 1:1000 solution of atropine sulphate is injected into the neighborhood of the hernia; if this is effective the dose is repeated every hour; if not, double the dose is injected and a gentle attempt at taxis is made. After six to eight hours a laparotomy is indicated if vomiting continues, and the pulse and facial expression do not improve. It will be possible to save many patients from operation, and the method demands an extensive trial, especially in the aged, where the mortality is unusually high.

EXPLORATORY HYSTEROTOMY.

The methods of intra-uterine explorations are sufficient for most cases, but there are instances where a direct inspection of the mucous surface of the uterus is of paramount importance. Many conditions produce hemorrhagic metritis, but the lesion cannot be diagnosed accurately without opening the uterus and making a direct examination. Thus might be found a polypus, or an easily enucleated fibroma, and the condition could be cured

with but slight interference. An examination of the uterus after hysterectomy has repeatedly shown a lesion which could have been easily removed by other means. LEJARS (*Semaine Médicale,* No. 2, 1904) describes his technique for the operation as follows: The cervix is drawn down as for vaginal hysterectomy, the vaginal cul-de-sac is opened, and the peritoneal covering stripped back. The neck is opened in the anterior median line, thus avoiding bleeding, and the incision is carried beyond the internal os to expose the interior of the uterus. The finger then can be easily employed to explore the uterine cavity, and the mirror can be used to control these findings. If necessary the operation is continued by removing the cause of the disease; if not, the uterus and vagina are sutured.

SYMPATHETICECTOMY.

Of eight cases of obstinate optic nerve atrophy reported by BALL (*Journal of the American Medical Association,* Jan. 30, 1904) in which sympatheticectomy was performed, there were four failures and four improvements. At the present time it is impossible to decide whether or not bilateral resection should be done for unilateral atrophy.

Four patients, varying in age from two and a half to nine years, who had congenital hydrophthalmos were treated by operations on the cervical sympathetic. The tension was uninfluenced, and the vision so far as could be determined in such young subjects was unchanged.

The mortality of thyroidectomy for exophthalmic goitre is about 20 per cent. Kocher's recent statistics are very favorable. He performed 59 thyroidectomies; 45 were cured, 8 were improved, 2 were slightly improved, and 4 died. The danger of sudden death after thyroidectomy is emphasized by Starr. Of 190 cases not less than 23 died suddenly.

In exophthalmic goitre complete excision of the cervical sympathetic is followed by a larger percentage of cures than is any other procedure. Thus far no deaths have been attributed directly to the total excision of the cervical sympathetic. The results are 63.8 per cent of cures, 18.1 per cent of improvements, 18.1 per cent of failures, and no deaths. The number of operations is small, however, and final conclusions cannot be safely drawn at present.

INFECTIOUS OSTEOMYELITIS.

A careful study of eleven cases of infectious osteomyelitis reported by NICHOLS (*Journal of the American Medical Association,* Feb. 13, 1904) seems to justify the following statements in regard to the treatment of the affection:

1. In the acute stage of osteomyelitis, drainage of abscess in the soft parts alone is not sufficient. The bone-marrow is infected and must be drained. Removal of a sufficient amount of cortical bone alone is all that is required to give perfect drainage to the bone-marrow. Curettage and disturbance of the marrow cause extensive destruction of the endosteum, which if left alone has, in a limited number of cases operated on early, sufficient power of regeneration to repair the bony defect without the formation of a sequestrum. Under those circumstances a very early operation is necessary.

2. In the subacute stage it is desirable to remove the necrotic shaft, completely or partially, at an early stage in order to take advantage of the power of regeneration of the periosteum. The periosteum either before or after the beginning of periosteal ossification has the power of regenerating a completely or partially removed shaft of bone.

3. For mechanical reasons the manipulation of the periosteum is easier after ossification of the periosteum has begun but while the membrane is still plastic. Moreover, the rapidity and surety of perfect regeneration seem greater at that time.

4. The operation consists of an incision through skin and ossified periosteum down to the necrotic shaft, reflection of the periosteum, removal of the shaft, either entire or partial, folding of the plastic periosteum in such a way as to approximate the internal layers, suture of the edges by absorbable sutures, suture of the soft tissues, with, in both cases, provision for moderate drainage and complete immobilization.

5. The success of the operation is greater when asepsis is provided for by careful drainage preceding the operation, and by careful removal of all infected

material and tissues at the time of operation.

6. After the removal of the necrotic shaft, well marked ossification of the new periosteal shaft appears between the twentieth and fortieth days, and the shaft is solid enough to use in locomotion in from four to eight months. If the epiphyseal line is extensively destroyed, considerable shortening of the limb may result.

7. The regenerating bone at first becomes much larger than the original shaft was, and is entirely composed of solid periosteal bone, with no marrow canal. In time the size of the bone decreases almost or quite to that of the original shaft, and finally, judging from *x*-ray photographs, a marrow canal is formed.

8. The chief difficulty in completing the restoration of the shaft is to obtain complete union of the regenerated shaft to the epiphyseal line or to the portion of the normal shaft that remains. Slight necrosis and suppuration may persist at this point after the repair otherwise is complete, and may demand minor operations to remove small fragments of necrotic bone. Union at these points may be delayed, but ultimately always has taken place.

9. The best time for the operation ordinarily is about two months after complete drainage of the acute infection.

10. This operation is the operation of preference, and is especially applicable when an accessory bone which can act as a splint is present.

11. The anatomic, functional, and cosmetic results obtained by this operation are much superior to those obtained in any other way in cases of large bony defects due to acute infection of bone.

12. Where no accessory splint bone is present it may be impossible, in special cases, to maintain the contour of the affected bone by the above method. In such cases advantage can be taken of the power of central growth possessed by the shell of periosteal bone in its early stages. This means that the necrotic bone must be removed just as soon as the periosteal shell is sufficiently advanced and solid to maintain contour and bear the weight of the limb. Roughly, this stage is reached when the thickness of the periosteal shell is equal to one-quarter of the diameter of the original shaft.

13. The time when this condition exists can be determined by *x*-ray examination and by palpation.

14. If the necrotic shaft is removed at this time it leaves a solid cylinder of periosteal bone, very vascular, but partly calcified, analogous to the bone seen in an early external callus, and this shell has sufficient power of central growth to fill up large cavities. The rate of central growth seems to be markedly slower than that of peripheral growth. Persistence of sinuses is longer than in the preceding method, partly from a delay of closure of the cavity, and possibly from a failure to remove small fragments of necrotic bone at the time of operation.

15. This method of operating leaves at first bone very much larger than the original bone, but, as in the preceding case, the bone ultimately diminishes in size and slowly approximates that of the original bone.

16. In the chronic cases more or less sequestrum surrounded by an enormously thick shell of dense cortical, more or less ivory-like, bone exists.

17. The power of repair of dense cortical bone is very slight or practically wanting. Removal of sequestra leaves a more or less extensive cavity in bone, surrounded by a wall of dense bone, lined with unhealthy granulations, which has no tendency to close.

18. The most satisfactory methods ordinarily recommended for the closure of such defects are the aseptic blood-clot, or obliteration of the cavity and approximation of skin flaps. The aseptic blood-clot aims to fill the defect with dense scar tissue, but does not lead to regeneration of bone, and requires for its success greater asepsis than ordinarily can be obtained in extensive osteomyelitis. The skin flap method may close the cavity, but does so at the expense of great bony destruction.

19. From one semisuccessful case, from a consideration of the general process of regeneration of bone by the periosteum, and the successful results obtained in the subacute cases, it seems likely that better results can be obtained by removal of both sequestrum and involucrum and the use of the regenerative power of the periosteum.

20. In removing a portion of the shaft under such circumstances the excision should be carried sufficiently far into the normal shaft to get above a medullary

canal, occluded by dense, ivory bone, and reach vascular marrow.

21. Finally, the most satisfactory results in treatment of acute osteomyelitis can be obtained by complete drainage of soft tissues and marrow in the acute stage, with the removal of extensive necroses, if they occur, at a secondary operation undertaken about two months later, and by adaptation of the regenerative power of the periosteum for the formation of a new shaft.

ACTINOMYCOSIS OF THE EAR.

REVIERE and THEVENOT (*Revue de Chirurgie,* 1904, No. 1) have observed a suppurative lesion about the structures of the left ear consecutive to an external otitis, in a man of thirty-six. The structures involved were the upper two-thirds of the sternomastoid, the tissues over the angle of the jaw, and the external ear. In the pus were discovered granules typical of the ray fungus. Recovery followed a thorough and extensive extirpation of the actinomycotic lesions. In two reported cases death resulted from an involvement of the middle ear and the meninges. The infection probably arises by way of the Eustachian tubes, and the only chances for recovery are prompt and thorough surgical intervention. The prognosis at all times should be guarded.

OVARIAN GRAFTING.

MORRIS (quoted in *Medical News,* Feb. 13, 1904) obtained the following results from experimental work on a series of rabbits: (1) When the ovaries are removed from an animal and then replaced at some point near the original site, or even at a distant point, the tendency is for the ovary to continue its function of secreting ova and furnishing internal secretion. Such a transplanted ovary may continue to do normal work for an indefinite period. (2) When ovaries are removed from one animal and transplanted to another animal of the same kind, which has had its ovary removed, the tendency is for the grafted ovary to undergo degeneration. The graft will continue to develop ova and furnish secretion for several months in some instances, but at the end of a year the grafts are often found useless and fatty. It is to be assumed that the serum of one animal is destructive to the introduced tissues of another of the same sort.

Several conclusions of a practical value have been deduced from this experimental work, and may be applied to modern surgery. For instance, if in a case of pyosalpinx it is necessary to remove the ovaries and oviducts *en masse,* a part of a fairly good ovary may be placed in warm saline solution until the remainder of the work is completed, and then this piece of ovary can be grafted beneath the peritoneum at some point near its original site before closing the abdomen, thus preventing premature menopause. This refers chiefly to grafting a piece of the woman's own ovary. With a piece of another woman's ovary the patient may menstruate for several months and have the benefit of the internal secretion. It may be possible for her to become pregnant before the graft degenerates, but thus far this has occurred only in rabbits, and very shortly after the graft was introduced.

In one patient who had congenital degeneration of the adnexa and had never menstruated, menstruation was established by ovarian grafting and continued for nearly four years.

The method employed by the author consists in putting a piece of an ovary into a pan of saline solution at the temperature of 100° F. until the operation is completed. A segment of ovary is then inserted through a slit in the peritoneum somewhere near its original site in such a way that the raw surface of the ovary is extraperitoneal, where it can be nourished by the lymph circulation until new capillaries are formed for its support. Part of the ovary is allowed to protrude into the peritoneal cavity, so that the ova may escape into the oviducts in case such a possibility exists. One or two fine catgut sutures serve to hold the graft in place.

PERITONEAL SALINE INFUSIONS FOR ABDOMINAL OPERATIONS.

The employment of saline infusion in the peritoneal cavity is not a novel suggestion, but has been the subject of many active discussions, for it has been as earnestly advocated by some surgeons as it was strongly condemned by others.

From a clinical standpoint CLARKE and NORRIS (*Journal of the American Medical Association,* Jan. 30, 1904) have studied this question very closely for the last five years, and have every reason to extend rather than to limit its employment. As a general working law it can be stated that the greater the leucocytosis within twenty-four to thirty-six hours after an operation, the more likely is the infection to be overcome. While the number of their cases has not been sufficiently numerous to warrant them in drawing well defined conclusions, they believe that when normal salt solution has been used, leucocytosis has been somewhat greater during the first twenty-four to thirty-six hours after the operation than in the cases in which saline was not employed.

In order to test the value of the normal saline solution they carried out a series of experiments on rabbits with a virulent culture of staphylococcus aureus. In the experiments two animals of approximately the same size and condition of health were selected. They were anesthetized, the abdomen was prepared for an abdominal operation, and a cannula was introduced into the peritoneal cavity without injury to the intestine. In one of the animals one-half cubic centimeter of bouillon culture was introduced, and the wound closed by a sealed dressing. In the other animal after the same amount of bouillon culture had been introduced, one hundred cubic centimeters of normal saline solution at a temperature of 110° C. was injected through the cannula. Twenty-five test rabbits and twelve controls were employed. The control animals all died, the average length of life being a little over thirteen hours. Of the twenty-five test animals, eleven (33 per cent) are alive and well. The average length of life of the test animals that died was 83 hours, as against 13 1-3 hours of the control animals.

From a clinical standpoint the authors disprove the assertion that the distribution of infectious matter in the peritoneal cavity is not only valueless but very dangerous, for in a series of 254 laparotomies in which infusions were very largely employed, only seven deaths occurred. Of the seven fatal cases, however, only one could be attributed doubtfully to the use of the saline infusion.

The authors present the following conclusions: The use of saline solution does not increase but unquestionably minimizes the dangers of pyogenic infection. In addition to the reduction of mortality, the convalescence of the patient is rendered infinitely more comfortable through the satisfaction of thirst, the increase of urinary secretion, and the minimizing of vesical irritation.

CALCULUS OF THE URETER.

TENNEY (*Boston Medical and Surgical Journal,* Feb. 4, 1904) has been able to add 33 cases of ureteral calculus since the publication of the 101 cases collected by Schenck in volume 10 of the Johns Hopkins Hospital Reports. Seventy-four of the patients were females and 58 males, the sex not being stated in two cases.

The location of these stones has been in a general way in one of three places, depending on the physiological narrowing of the ureter. The first point of narrowing is about 7 centimeters down, and has a diameter of 3.2 millimeters; the second is just above or below the brim of the pelvis, and has a diameter of 4 millimeters; and the third is at a point just above the bladder, and has a diameter of 2.5 millimeters. The number of stones in the series of 134 cases caught in the above locations corresponds very nicely in its diameters, 35 being caught in the first isthmus, 18 in the second, and 73 in the third. In the remaining cases the location was not given.

All statistics indicate that the danger of anuria decreases after the calculus passes the first constriction, and increases slightly after the calculus reaches the vesical end. Of the 134 cases 12 were relieved by procedures which did not involve a cutting operation, the calculus being discharged through the ureter naturally, or was extracted with forceps, or broken up with a lithotrite, after being pushed out of the orifice of the ureter. Of 122 cases upon which a cutting operation was performed, 98 recovered and 23 died, while in one the result was not given. Of the fatal cases 8 were operated upon while suffering from total anuria and 3 from partial anuria, making a mortality of 11 deaths in 21 cases, or 32 per cent operated upon for anuria.

Of 15 cases complicated by pyelitis, or

pyelonephrosis, 7 died, giving a mortality of 47 per cent. In one case the bladder was opened above the pubes and the ureteral orifice slit, opening into the peritoneal cavity; "the patient became maniacal; no urine on the tenth day; died on the thirteenth day; never had any fever, but an extremely rapid pulse." One case died of uremia, and autopsy showed cystic degeneration of both kidneys. One case was under chloroform anesthesia for nearly two hours, and showed fatty degeneration of the heart at autopsy. Another case also showed degeneration of the heart muscle at autopsy, after two hours of chloroform and ether anesthesia. In the remaining cases the cause and time of death are not stated. Of these 23 deaths the large proportion were unavoidable, whether the patients were operated upon or not.

Subtracting the 21 cases of anuria and the 15 cases of pyelonephrosis and pyelitis, there remain 85 cases operated upon for stone in the ureter, apparently without grave complications, and in which the results are stated. Of the 85 cases there were five deaths, giving a mortality of less than six per cent. Even this mortality rate is higher than it will be in the future as methods of operation improve, and operation is performed before secondary changes have taken place in the kidneys and general system.

The author urges the extraperitoneal route in performing nephrolithotomy. In those cases in which the stone is located in the lower portion of the ureter, some writers advise pushing the stone down into the bladder, but the small size of the constriction makes this suggestion difficult, if not dangerous, to carry out, unless the orifice be already dilated. There is so little danger in taking a calculus through the ureteral wall that it is wiser to remove it directly, with as little manipulation as possible, provided that it cannot be pushed up easily to a more accessible point. Extraperitoneal ureterotomies have been done thirty-four times, with five deaths. Three of the five were suffering with anuria when operated upon, one at autopsy showed cystic kidneys, and the fifth had a dilated and fatty heart.

The author presents the following conclusions:

Intermittent pain on one side, with varying amounts of blood in the urine, are constant symptoms of stone in the ureter.

Although it is the best means of locating the stone, the *x*-ray cannot give evidence sufficient in itself to warrant the surgeon in operating or refusing to operate in certain cases.

If the calculus starts from the kidney to the bladder it is likely to catch in one of three places, all of which are accessible to the surgeon through extraperitoneal openings.

A single calculus is the rule, but the exception occurs, according to these cases, about once in eight times.

The opening of the ureter or kidney pelvis for removal of the calculus should be sutured, if possible, with absorbable material, but non-absorbable materials have been used with equally good results, and wounds of the ureter and kidney pelvis apparently heal equally well. Recovery is only delayed if sutures are not used.

A calculus in the ureter is a menace not only to health, but to life, and its removal is an operation of low mortality, provided that it is undertaken before secondary changes have taken place in the kidneys.

WOUND INFECTION DUE TO SALIVA.

Every surgeon usually speaks during an operation, and it is therefore evident that drops of saliva must find their way into the wound, and the question arises whether this is dangerous to the patient and likely to cause infection of the wound.

De Léon (*Medical Press,* Jan. 27, 1904) has investigated this subject by speaking in front of agar plates, care being taken to prevent infection from air microbes. These plates proved that in speaking microbes are emitted from the mouth, and in operating multitudes of dangerous and infectious germs are projected into the wound. In every one of several hundred experiments, streptococci, staphylococci, diplococci, and aerial microbes were isolated. The writer estimates that nearly a quarter of a million dangerous microbes fall into the wound during the course of an operation in which the operator speaks only two hundred words. That the microörganisms were virulent was shown by the inoculation of forty-one guinea-pigs, fifteen white mice, and five rabbits. Of these, eight guinea-pigs and ten white mice died, and the

microörganisms were recovered from the liquid exudation in the peritoneal cavity as well as from the liver and heart.

The only way to prevent this danger is by mechanical means. Masks made of gauze are ineffectual. Speaking in front of plates through a single gauze mask resulted in seventy-five colonies of microbes on the plate, thirty-nine of which were streptococci; speaking with a double gauze mask, there were twenty-one colonies.

The author has devised a respirator which consists of double perforated metal plates between which is packed a small quantity of cotton-wool. This respirator when applied over the mouth does not interfere with speaking, though it does prevent the exit of dangerous microbes from the mouth, as shown by several experiments of speaking against agar plates, on which not a single colony of microbes developed.

WATER ANESTHESIA.

More than 150 cases of rectal affections radically operated upon by GANT (*Medical News,* Jan. 23, 1904) have shown that sterile water, properly injected, is a reliable anesthetic. He is convinced that this is the most desirable method for these operations, for the reason that it produces an adequate degree of anesthesia, while in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications frequently met under the use of cocaine or similar drugs.

The only requirements are sterile water and a hypodermic syringe fitted with a long, fine, sharp-pointed needle, which with the syringe itself should be sterilized. When an incision through the skin is required, a fold of the integument at one extremity of the line of incision is compressed for a few moments between the thumb and forefinger; this diminishes or prevents the momentary pain which is caused by the first injection. The needle is then introduced between the layers of the skin, and a few drops of water slowly injected; immediately on the appearance of the small localized swelling thus produced, cutaneous anesthesia should occur at this point. Next the needle is slowly inserted further and further along the line of the cut to be made, care being taken not to go entirely through the skin, and the water is gradually injected as before. When the syringe is empty it is refilled and the needle reintroduced into the anesthetized area; the injections being repeated until the distention extends the entire length of the line of the incision. The needle is then plunged through this distended line, and subcutaneous injections are made rapidly until a firm, whitish, ridge-like swelling, about the thickness of the index-finger, is produced. The skin and underlying tissues can be incised now without pain in almost every instance. For external thrombotic hemorrhoids it is requisite to make the injection only between the layers of the skin overlying the clot to be removed, while in excising external cutaneous hemorrhoids both skin and tumors should be distended tightly. Large internal venous or capillary hemorrhoids may be anesthetized completely within thirty seconds by injecting directly into the center of each tumor sufficient water to distend it tightly and to cause it to turn white. Any affection which requires operative procedure to increase the lumen of the anal outlet, or which necessitates incision of the sphincter, may be operated upon under water anesthesia. After the skin and mucous structures up to the anal margin have been distended, injections are made into the mucosa, the submucosa, the external sphincter, and if necessary the internal sphincter muscle.

The author claims the following advantages for this method:

1. In the majority of rectal operations there is no necessity of subjecting the patient to the annoyance and expense of entering a hospital and undergoing general anesthesia.

2. The rapid distention of the tissues to be incised or removed enables the operator to work quickly, and as the patient is not confined to bed during the after-treatment, but can come to the office to be dressed, it economizes the surgeon's time and labor.

3. No annoying complications or sequelæ have been observed. It eliminates the danger to life from the heart, lung, and kidney complications, which may result from the use of ether or chloroform, and it avoids the increased pain

and hemorrhage due to straining and vomiting after general anesthesia.

4. Experience has shown that the pain and bleeding following this method are less than when medicinal local anesthetics are employed.

5. The only requirements are a hypodermic syringe, a suitable needle, and boiled water.

6. The radical treatment of hemorrhoids can be carried out so easily in the physician's office, and with so little danger and inconvenience to the patient, that it should relegate to oblivion the vaunted injection treatment, which is both dangerous and uncertain.

This method is not practicable for extensive operations, such as are required for excision of the coccyx, the removal of large tumors by excision, resection of the bowel, the relief of complete prolapsus recti, very extensive fistulæ, abscesses, strictures, congenital malformations, or other affections located in the upper rectum; neither is it applicable for opening the abdomen in cases where there is a thick layer of fat and the tissues are so loose and so flabby that a proper degree of distention cannot be secured.

If the pressure is quickly induced, by too rapid injection of the water, it may cause considerable temporary discomfort, amounting to pain in extremely sensitive subjects.

CICATRICIAL STRICTURE OF THE ESOPHAGUS TREATED BY DIRECT DILATATION.

The intelligent treatment by direct dilatation of cicatricial stricture of the esophagus presupposes a correct diagnosis. An important fact upon which too much stress cannot be placed is that gastrostomy in stricture of the esophagus is only a palliative operation. In the belief that direct dilatation with the attendant and consequent pressure absorption is at last the only real curative measure in strictures of the esophagus, EASTMAN (*Annals of Surgery,* February, 1904) has devised some new instruments, and believes that by their use a certain percentage of so-called impassable cicatricial strictures may be entered and dilated, and the use of ordinary esophageal bougies, laminaria pencils, and electrodes made possible.

Rectal alimentation and the use of a hernia pad after simple gastrostomy may give some aid in sustaining the declining patient, but a certain percentage of cases operated upon with a view to retrograde dilatation must succumb at length to starvation for the reason that after simple gastrostomy food is expelled with each descent of the diaphragm.

Gastrostomy may be useful as a step toward immediate retrograde dilatation of an impassable stricture, at or near the cardia, and for the establishment of a water-tight, valve-closed canal through which the patient may be fed, or while a stricture of the upper or middle portion of the esophagus is being opened by direct dilatation.

Gastrostomy, as a preliminary step in the application of such methods of treatment of gullet stricture as those of Ochsner and Abbe, is of course indispensable.

Children stand gastrostomy badly, and their nutrition through a gastrostomy tube is difficult. Contrary to the experience of others, the writer has found it easier to dilate esophageal strictures in infants and small children than in larger children and nervous and rebellious adults.

The extent of the stricture in the transverse and the long diameters is very variable. Often the passage is not only narrow but devious, and the lumen of the stricture may be displaced from the center of the esophagus so that the passage of instruments, except by chance, is often impossible. In strictures of this type a malleable or dirigible bougie offers a distinct advantage. With the usual forms of esophageal bougies and dilators the surgeon has no control over the position of the tip of the instrument. The writer has devised a malleable bougie to which can be given any desired curve, and the direction of whose tip may be controlled by the operator. The bougies are of spiral-wound steel wire, filed flat and smooth, and contain a withdrawable soft lead core. They are made in various lengths and diameters. The core is so soft as to practically eliminate the danger of perforation or trauma to the esophageal mucosa. The lead core makes it possible to determine the position of the sound while in the esophagus by the use of the *x*-ray.

A large sound of this type at times

may be passed readily through a strictured lumen which does not permit the entrance of very small, ordinary bougies in skilful hands.

For tight strictures several filiforms, 15 inches long, are introduced into the esophagus, some bent, some twisted corkscrew-like, some straight. By manipulation one of the filiforms can be made to slip through the strictured segment. The other filiforms are withdrawn. The spiral-wound, flexible, metallic bougie is then introduced, by screwing its small threaded end to the threaded butt end of the filiform and pushing it gently into the esophagus with or without the lead core, according to the resistance offered by the stricture. The filiforms, being soft and flexible, curl up in the stomach without trauma to the gastric mucosa.

A shorter and stiffer filiform point may be used successfully to guide the dilator through a tight stricture at the level of the diaphragm. A short, hard-rubber tip may be screwed to the hollow end of the metallic bougie when the latter is to be used as an ordinary sound.

The writer also has devised a dirigible sound, the distal end and tip of which may be moved at will while the instrument lies in the esophagus, by the manipulation of an adjustment screw at the proximal extremity.

Bulbous sounds for the esophagus, like the urethral "bougie à boule," are useful in locating the strictures, but are of little value as dilators. It is almost impossible to cause a bulb to lie in the grasp of a small stricture, hence it is not easy to secure with them the absorption produced by continued gentle pressure.

The swallowing of weak cocaine or adrenalin solution, by virtue of the vascular depletion produced by these agents, facilitates the introduction of any esophageal sound. Aside from producing local anesthesia, the cocaine solution in most cases will relieve nausea and prevent spasmodic and violent reversed peristaltic efforts, which may render the passage of an instrument well-nigh impossible in an otherwise passable stricture.

The writer has found that tilting the head forward, thus relaxing the tissues of the neck, greatly facilitates the passage of esophageal instruments.

Not all varieties of esophageal stricture may be treated successfully by dilatation, yet it is doubtful whether the sound is not useful at some time in every case of cicatricial stricture.

OSTEOPLASTIC AMPUTATION OF THE LEG.

On account of some unfavorable results recently reported in cases in which amputation of the leg was practiced, by various osteoplastic methods, DUVAL (*Revue de Chirurgie,* January, 1904) details four successful cases of over three years' standing. Operation consisted of forming an osteoplastic flap from the tibia, and suturing it with silver wire to the end of the fibula. The long, posterior, musculocutaneous flap employed in these cases served as a thick cushion over the end of the stump. At the end of three years all four cases had soft, painless stumps, capable of withstanding great pressure. Radiographs show that the osteoplastic flap was in all cases attached firmly to the end of the tibia, and in three cases to the fibula as well.

ACCIDENTS DUE TO LUMBAR PUNCTURE.

Lumbar puncture usually is not accompanied by unfavorable complications. It may be followed by pain in the legs, headache, vomiting, vertigo, and syncope, but these are not serious as a rule. When followed by fever and tachycardia in association with meningeal symptoms, the situation is grave and death may occur. Henneberg reports a death from hemorrhage following lumbar puncture. MAYSTRE (quoted in *American Medicine,* Jan. 16, 1904) indicates the precautions that should be taken.

The patient should be prepared as for major operation. He should be given a purge and diuretic, the diet should be light, and he should avoid all worry; after the operation the patient should be placed in bed with his head low, and allowed to remain in this position for six hours or more according to the needs. Asepsis should be practiced with scrupulous care. When the needle is withdrawn the cutaneous orifice should be touched with tincture of iodine or a thermocautery; a little collodion may be used to close the wound,

and this in turn covered with a layer of cotton and a bandage, which is left in place for forty-eight hours. The puncture is made in the lumbosacral region. Not more than 7 to 10 cubic centimeters (2 to 2½ drachms) of liquid should be drawn off, as large quantities may lead to very serious consequences. It should be withdrawn slowly, never aspirating to hasten the flow. The face and the pulse of the patient should be watched, and at the least faintness or complaint the needle should be withdrawn. These precautions will reduce complications to a minimum, but the operation should be performed only in urgent cases. This treatment may be used in cerebrospinal meningitis when hot baths seem to produce no improvement. Certain cases of cephalalgia due to Bright's disease are relieved by lumbar puncture. As a means of diagnosis it should be used only in indecisive cases in which a definite knowledge is necessary, and in such cases a consultant should be called.

GASTROENTEROSTOMY BY MEANS OF THE ELASTIC LIGATURE.

NANCREDE (*Physician and Surgeon*, December, 1903) advocates the McGraw elastic ligature method of performing gastroenterostomy.

Having identified and selected the portion of the intestine, an assistant should hold it together with the stomach gently upon the stretch while a continuous seromuscular suture is passed, to unite the two for a distance of two or more inches, according to the size of the opening desired.

If the assistant will so hold the stomach and intestine that they are somewhat distended with flatus, this maneuver will prevent the needle-point catching in the valvulæ conniventes, or the opposite wall of either viscus. A good-sized darning-needle threaded with a rubber ligature one-eighth of an inch thick must now be thrust through the stomach wall, near one extremity of the suture line, and made to emerge near the termination of the same. An assistant by maintaining traction on the elastic ligature renders it much smaller, so that it can be drawn readily through the stomach for about half its length. Next the needle should be made to penetrate the intestine opposite its point of emergence through the stomach and be brought out again, with the ligature, at a point corresponding to that where the stomach was first entered. This order of passing the ligature is better than the reverse, being not so liable to produce infection should the ligature touch any viscus, and is also advantageous by not putting so much strain on the suture line. Tension on the ligature favors its passage, and a careful wiping of the cord by a wet sponge, after its emergence, first from the stomach and later from the bowel, is advisable. Performed in this way, infection cannot occur, because the opening is tensely filled by the ligature. A stout silk ligature is laid between the points of emergence of the rubber ligature from the stomach and intestine. The rubber ligature is firmly drawn upon, an assistant crowding the included visceral walls well along the stretched ligature, after which the first half of an ordinary square knot should be tied and tightened until the ligature will stretch no further. A steady, prolonged pull must be maintained, otherwise the cord will either break or will not be tight enough to cut as quickly as desirable. An assistant should tie the silk ligature tightly with a square knot around the rubber half tie, the ends of which at once assume their former diameter when the tension is relaxed, thus preventing slipping. The second half of the square knot can be made with the stretched rubber ligature and tied with the silk ligature, if deemed advisable. Cutting the rubber ligature close to the silk tie, and burying this with all the tissues included in the rubber loop by a continuous silk seromuscular suture, completes the anastomosis, after which the parts are cleansed and dropped back into the abdomen, and the parietal wound is closed.

McLean's needle is advantageous for passing the ligature, but a good-sized darning-needle is all that is actually requisite. The method is simple and requires but little technical skill. The time required to complete the operation should be no more than when the Murphy button is employed, the size of the opening is unlimited, and the minute foreign body formed by the loop of the ligature can be confidently ignored. No special instruments are demanded, no clamping of stomach and intestine to prevent the escape of their contents, no elaborate pack-

ing of the abdominal cavity to prevent infection.

The vicious circle is not prone to follow this operation. The operation is contraindicated when at least three to five days cannot be spared before full stomach feeding is instituted.

The writer has operated upon fifteen cases during the past eighteen months by this method. No fatality traceable in any way to the method of operating occurred, although one patient died in thirty-six hours from exhaustion, and another in eight days from a carcinomatous obstruction of the colon. A post-mortem examination in both instances demonstrated that the method of operating had nothing to do with the fatal result. No failure to secure an adequate opening has been observed in any case.

CHRONIC NEPHRITIS—SURGICAL TREATMENT.

REYNOLDS *(Boston Medical and Surgical Journal,* Feb. 4, 1904) reports four cases of chronic nephritis, all of which were operated upon in the comparatively early stages of the disease. All four recovered; two may be called cured, and one relieved, while one is probably unrelieved.

Theoretical consideration of this affection has led the author to adopt a somewhat different operation from that advanced by Edebohls. First, the capsule is slashed in parallel lines, instead of decapsulating the kidney; secondly, operation is performed in each case only on the more seriously diseased kidney, in the belief that the patient thus incurs less danger and far less discomfort during convalescence, and there is a probability of obtaining as much benefit from this procedure as from the double operation; in the third place, should the case be relieved but not cured by this operation, it is a simple matter to operate later on the second kidney.

In summing up his experience the author rather tentatively presents these conclusions:

1. It must be admitted that our present knowledge of the pathology and physiology of renal disease is still defective, but there is reason to believe that nephritis has, as a rule, an infective origin, and it is probable that a defective renal drainage, due to swelling of the organ within a rigid capsule, plays a part in maintaining the disease.

2. Cases in which general uremic symptoms are more prominent than the physical signs obtained on the examination of the urine are unpromising cases for operation.

3. The cases in which urinary signs and constitutional depression outweigh the distinctly uremic general symptoms may be regarded as favorable for operation.

4. In the cases in which one kidney is mainly or predominantly affected, a unilateral operation on that kidney insures improvement in health if not an ultimate recovery.

5. In women in whom ureteral catheterization involves little trauma and less risk, all cases of chronic nephritis, as soon as recognized, should be subjected to ureteral catheterization; and in any unilateral case in which the normal state of health is being decidedly and progressively lowered, operation may be recommended as affording a fairly definite prospect of health to an otherwise incurable condition.

THE SURGERY OF BRAIN TUMORS.

After discussing the surgery of brain tumors, FRAZIER *(American Journal of Medical Sciences,* February, 1904) presents the following résumé:

1. All measures recognized as prophylactic of shock should be observed stringently. In these are offered the most effectual means of reducing mortality. The most important of them are (*a*) the avoidance of prolonged operation; (*b*) the prevention of excessive hemorrhage; (*c*) the avoidance of unnecessarily rough manipulation of brain substance.

2. A given area of brain can be exposed with the minimum degree of traumatism and greatest economy of time by the so-called dental engine, armed with a trephine and drill.

3. Temporary occlusion of the carotids in operations upon the brain is ineffectual and not unattended by danger. It should be reserved for extreme cases and practiced on one side only.

4. Observations should be made upon the blood-pressure immediately before and at frequent intervals during the operation, the object of the same being two-

fold: (*a*) to ascertain the patient's condition by a reliable index; (*b*) to determine by the only exact method whether the operation should or should not be carried out in two stages.

5. Two-stage operation is indicated when there has been a decided fall in blood-pressure after the relief of the brain tension such as follows the reflection of the Wagner flap.

6. Lumbar puncture, as a means of relieving pressure, is a temporary, not to say dangerous, procedure.

7. Bulging of the brain is one of the most embarrassing features of cerebral operations. A distinction may be made between that which occurs immediately after reflecting the dura, "initial" bulging, and that which follows as the result of subsequent exploratory operations, "consecutive" bulging.

8. Initial bulging is due to the increased tension exerted by the tumor substances. It is not always present, is often not excessive, and is not likely to be followed by consecutive bulging.

9. Consecutive bulging is due to cerebral edema set up in normal brain tissue by the trauma of exploratory manipulations. Consecutive bulging far exceeds in magnitude initial bulging, and suggests the presence of a tumor of considerable size at the seat of operation.

10. In order to avoid consecutive bulging, exploration should be carried out in the most expeditious manner.

11. When the edges of the dural wound cannot be approximated without undue tension, or without great laceration of the brain substances, the gap should be closed by a graft taken from the pericranium, providing a tumor has not been found, and there is reason to question the accuracy of the diagnosis.

12. When there is every assurance of a tumor being present, but it proves to be inoperable, or imperfectly localized, no attempt should be made to close the dura, as in so doing the best palliative effects of the operation will be counteracted.

13. Palliative operations should be regarded not merely as operations of propriety, but should be considered imperative when the tumor cannot be found or cannot be removed.

14. A statistical consideration of the results of the last five years is encouraging. The mortality, both immediate and subsequent, has been reduced materially. Recurrence after operations for malignant growth of the brain is not greater than for malignant growths of other structures.

PARTIAL ENTEROCELE.

HOTCHKISS (*Annals of Surgery,* February, 1904) states that partial enterocele, or hernia in which only a portion of the gut wall is pushed into the hernial sac, is as interesting as it is rare.

To the surgeon it presents itself as a form of strangulated hernia, most dangerous because of the lack of typical symptoms. The hernial sac is generally small, its contents a portion of intestinal wall, and very exceptionally omentum. With dense and unyielding walls, and a narrow aperture in which the partial enterocele is caught, the strangulated portion of the gut wall soon loses its vitality, and gangrene, perforation, or general peritonitis may ensue, before the case assumes clinically the appearance of real gravity.

In some of the reported cases a preexisting hernia has been present, but in the majority it is very small or entirely unnoticed, until after some unusual strain perhaps a small swelling develops at the site of one of the hernial openings, and becomes painful. From the fact that only a portion of the intestinal wall is engaged in the neck of the sac, the typical signs of acute intestinal obstruction, so early developed in ordinary cases of strangulated hernia, may not appear until late, or until the inflammation with its accompanying swelling has spread to and involved the unstrangulated portion and led to its complete occlusion.

The portion of intestinal wall involved in partial enterocele is generally the convexity opposite the mesenteric attachment. The lateral wall, however, may be the seat of strangulation, simulating a true diverticulum, or even the mesenteric border of the gut may be implicated.

When such a hernia does occur, it must be evident, from its very nature, that the interference with the circulation in the involved portion of the gut must soon be followed by swelling and infiltration of its tissues, by the outwandering of intestinal bacteria through the damaged gut wall, and a general infection of the sac and its contents. Adhesions between the gut and

the neck of the sac protect the general peritoneum from infection for a little time, but finally this feeble barrier is overcome and a general peritonitis rapidly develops.

Since the conditions in strangulated partial enterocele are such that considerable damage to the intestinal wall is bound to have occurred before the diagnosis is made, or an operation undertaken, resection of the gut will have to be resorted to in most of the cases.

The writer reports six cases which are characterized by a lack of uniformity in the symptoms, the absence of any single pathognomonic sign which would have made an early diagnosis reasonably certain, and finally by the great disproportion between the early symptoms and the real gravity of the cases. All six patients were operated upon. Three died and three recovered.

MUSCULAR HERNIA—DIAGNOSIS AND TREATMENT.

BILHAUT *(Annales de Chirurgie et d'Orthopédie,* December, 1903) reports a case of hernia of the triceps muscle in a young man twenty-eight years of age, who had received a severe blow on the posterior surface of his right arm ten years previously. On the lower posterior aspect of the arm there was a soft tumor, not adherent to the skin and exhibiting neither fluctuation, redness, pain, nor tenderness. The tumor was not adherent to the humerus, and was freely movable laterally, but not vertically. When the forearm was flexed the tumor was situated low down, but when the arm was forcibly extended the swelling reached its highest position at the middle third of the arm, and was, moreover, harder, smaller, and much less movable. This change in position Bilhaut considered quite pathognomonic.

It is difficult in these cases to recognize the condition of the enveloping aponeurosis without surgical intervention. The fascia may be merely stretched, in a manner comparable to the sac of an abdominal hernia, or it may be freely torn, the latter being more probable in injury from direct violence or muscular contraction. In the author's case it was feared that the fascia was stretched and thinned out rather than simply divided, and still firm, hence an operation was not performed, as the aponeurosis, if sutured, would not bear the strain necessary to maintain and reduce the reduction of a hernia the size of half an orange, nor would it be possible to increase its strength by overlapping. The long interval since the injury and the good functional power of the triceps also favored non-intervention in this case, as they would in analogous cases.

When the muscular hernia is recent and small in size, the injuries should be repaired by suture of the fascia.

BALSAM OF PERU TREATMENT OF COMPOUND FRACTURES.

During the last four years VAN STOCKUM (quoted in the *Journal of the American Medical Association,* Feb. 6, 1904) has treated compound fractures in the following manner: All foreign substances are removed with sterile forceps, but the wound is not washed nor disinfected, and no ligature is applied unless a large artery is bleeding. Balsam of Peru is then poured copiously into the wound, its penetration being promoted by moving the limb a little. The fracture is then reduced as if it were a simple fracture, and the wound is dressed with gauze impregnated with the balsam under an impermeable covering. The limb is immobilized in a plaster cast for three weeks, and the dressing is left undisturbed. The temperature always rises at first, but not seriously, and subsides to normal by the fifth or sixth day. At the end of three weeks the mortified tissues are found mummified; the edges of the wound show no trace of redness or swelling; the bones are found consolidating and the wound granulating normally. He seldom had occasion to apply the balsam more than once or twice in 90 cases thus treated, including 58 of the leg, 4 of the thigh, 15 of the arm, 2 of the pelvis, 1 of the patella, 2 of the calcaneum, and 8 of the lower jaw. The treatment was a complete success in all but 4 cases. In these there was some suppuration, but recovery without a second operation occurred in all but one, in which gas gangrene necessitated secondary amputation. In 8 cases healing was delayed by the presence of a foreign body, causing a fistula and requiring removal. The results of this treatment cannot be due to

any bactericidal property of the balsam, but rather to its effect in stimulating the living tissues. Landerer obtained similar results in tuberculosis with cinnamic acid, one of the elements of balsam of Peru.

INTRA-UTERINE FLUSHING FOR INFECTION.

With the noteworthy and perhaps the single exception of the gonococcus infection, which may be engrafted upon the healthy and unbroken mucous membrane, infectious diseases of the female genital and pelvic organs are to all intents and purposes nothing more nor less than wound infections. They are of the same origin, and their course and consequences are similar to like pathologic processes elsewhere in the body, and they are subject to the same laws for prevention and treatment.

In maintaining that the curette and mercuric chloride douche should not be used in *acute* infections of the female genital organs, WETHERILL *(American Medicine,* Jan. 30, 1904) states that they are unnecessary and universally injurious. This refers to acute infections and does not apply to chronic endometritis, the result of old infection; nor to those cases of sapremia, after delivery at term, or after abortion, in which the symptoms are clearly due to the retention of putrid products of conception, which must and should be instantly removed, with the dull curette if necessary. The use of the curette is irrational in these acute infections, which are mostly of the streptococcus, staphylococcus, or colon bacillus varieties, as there is very often no putrid foreign body to be removed from the uterine cavity, and even if there were it would be unwise to break down the natural barriers to the extension of the process with the curette, when the indications of the case can be met better by other means.

The intra-uterine and vaginal douche of mercuric chloride is without other good effect than the mechanical one of washing away the accumulated discharges, a function which is better met by the douche of plain water or of salt solution.

To provide perfect uterine drainage and a means for maintaining it without disturbing the patient or the parts involved, the author suggests the use of a two-way tube made as follows: Two large openings an inch apart are cut in a long piece of drainage tubing; one end of the tube is passed through the first opening and out at the second and is pulled taut, so that the portion between the openings is inverted. The legs of the tube are bent down, sutured together in the direction which keeps the openings patulous.

After the removal of putrescible débris from the uterus by the finger and blunt placenta forceps, followed if necessary by flushing with salt solution, potassium permanganate solution, or diluted alcohol, all non-toxic and used only for their mechanical effect in washing out loose fragments, the double drainage tube is gently inserted to the uterine fundus and flushed with salt solution or diluted alcohol to assure its freedom from obstruction by clots or débris, the vagina is lightly packed with iodoform gauze, and the patient is returned to bed. The manipulation is so gently done that no anesthetic is needed. The tubes are flushed every two to four hours, with alcohol of a strength varying from 25 to 95 per cent, according to the severity of the symptoms and the degree of smarting it produces at the vaginal outlet. This is a modification of the alcohol method of Carossa, but in the author's judgment and experience a very important and valuable change has been made in leaving out all packing of the uterine cavity, and in the use of double tubes for flushing and drainage without disturbing the patient's position in bed.

Best of all, however, is the fact that it can be employed by every capable practitioner everywhere, and that its use involves no surgical operation, no anesthetic, no frequent and painful handling of the patient, and that it will yield results heretofore unattainable by any other method.

TUBERCULOUS STRICTURE OF THE INTESTINE.

CULLEN *(American Journal of the Medical Sciences,* March, 1904) remarks that tuberculous infiltration of the intestines is relatively frequent, but stricture of the lumen of the bowel as the result of this condition is somewhat rare. In one thousand autopsies on tuberculous patients Eisenhardt found intestinal lesions in 566 cases; in only nine, however, was there a more or less definite stricture of the bowel.

Tuberculous strictures are usually sin-

gle, and situated at the ilocæcal valve. The cæcum is converted into a sausage-shaped body, which is adherent as a rule posteriorly, and occasionally laterally. The omentum is not so prone to engraft itself upon the tumor as in cases in which appendicitis exists. The outer surface, while relatively smooth, may be studded by a few tubercles. At one point the gut shows a constriction, and around this the adipose tissue is usually very dense. At the point of stricture the lumen of the gut is so narrow that the tip of the finger, or even a small-sized sound, can be introduced only with difficulty.

In rare instances the process involves the abdominal wall, and forms a fistulous opening on the surface. The mesenteric glands become involved early in the tuberculous process, and where the cæcal invasion is apparently in its incipiency there may be caseation of these glands. Tuberculous stenoses of the gut, when multiple, are almost invariably situated in the ileum. From one to twelve strictures have been noted in the same patient. The bowel between the strictures is distended, and in some cases has been known to reach 17 centimeters in circumference. The appendix is usually adherent, but unless the tuberculosis of the cæcum is far advanced, shows no implication in the specific process. The peritoneal surface is usually free from tuberculous nodules until the disease is far advanced, or unless there is an associated tuberculous peritonitis.

Tuberculosis of the cæcum usually is observed in patients between twenty and thirty years of age, but it may be found in the very young, or in individuals fairly advanced in years.

Not infrequently a tuberculous process is present in some other part of the body. One of the first symptoms is constipation; after a time dull or sharp pain is felt in the appendiceal region; as the constriction develops there may be an intermittent diarrhea, and fulness may be noted over the cæcum. Where there is much infiltration of the intestinal wall the gut becomes very firm, and forms like a sausage-shaped tumor. Symptoms of obstruction gradually supervene, as evidenced by abdominal distention, colicky pain, marked peristalsis, vomiting, and rapid loss in weight.

Given a tumor of slow growth in the right iliac fossa, a clinical history pointing to pulmonary tuberculosis, and a comparative absence of temperature, it is highly probable that tuberculosis is present. If the patient be fairly well advanced in years, malignancy must be considered.

The diagnosis between cæcal tuberculosis and appendicitis is usually dependent on the tuberculous history and the slow growth of the tumor, together with the absence of a temperature suggestive of pus accumulation. If tuberculosis of the cæcum is diagnosed, early operation is indicated. Resection of the entire diseased area is necessary for a complete cure. Lateral anastomosis between the ileum and the ascending colon is the ideal operation. If the span of the gut involved by the tubercular process be not over three or four feet, it is wiser to remove this portion in its entirety. In one of the cases reported between six and seven feet were removed and the patient recovered. The mesenteric glands should be examined carefully, and if involved they should be excised. Hoffmeister has reported eighty-three operative cases with sixty-three per cent recovery.

GONORRHEAL CONJUNCTIVITIS.

OLIVER *(Therapeutic Review,* January, 1904) states that in early cases of gonorrheal conjunctivitis fatal or indifferent ocular results will be avoided by the following treatment:

1. Free, gentle, and repeated cleansing of the surface of the infected tissues with sterile water applied through a bulb syringe by an experienced nurse.

2. Early obtainment and maintenance of full pupilary dilatation, with the removal of all undue iridic and ciliary muscle action by means of atropine, or, when necessary, scopolamine, supplemented by atropine.

3. Lowering the invading microörganisms' vitality by the constant use of iced compresses, which however must not be applied to eyes which such treatment would injure.

4. Maintenance of the organs' vitality, especially where there are trophic disturbances, as in corneal involvement, by the topical application of heat.

5. Destruction of the intruding floral germ-cell material with the least possible disturbance to faunal cells of involved part by gently patting the exposed areas

of the palpebral mucous structures with weak solution of nitrate of silver.

6. Isolation of patient and protection of unaffected eye.

7. Support and improvement of the patient's general condition by copious ingestion of easily digested and assimilable foodstuffs, by the graded but copious internal use of sterile water, strict emunctorial hygiene, and organic corrective when needed.

8. Skilled nursing, as long as examination shows presence of gonococci germ.

These rules must be closely adhered to until some days after examination has shown that the gonococcal infection has been completely eradicated.

PRIMARY CARCINOMA OF THE BULBOUS URETHRA.

HALL (*Annals of Surgery*, March, 1904) has succeeded in compiling a list of twenty-one cases in which the diagnosis of primary cancer of the bulbous urethra has been confirmed by microscopical examination. There are also on record five cases in which no such examination was made, and three in which the growth arose primarily in Cowper's glands.

Primary cancer of the urethra occurs in men over fifty who most frequently have suffered from some disease of the canal, usually gonorrheal stricture. The most prominent symptom is the gradual formation of a hard, nodulated mass around the urethra. Micturition becomes increasingly difficult and is very painful, far more so than in simple stricture. Hemorrhage, especially before and after micturition, seems to be a common symptom. As the growth extends the crura and corpora cavernosa become involved, and the disease advances past the scrotum into the penile portion of the urethra. The glands in the groin enlarge, and the patient becomes cachectic in appearance. The passage of an instrument may be difficult and is apt to be followed by bleeding. In four of the cases there was a marked absence of pain and hemorrhage, and in two of these instruments passed with great ease into the bladder.

A differential diagnosis between malignant disease and simple induration around the stricture frequently is impossible prior to operation, except when the size of the perineal swelling is out of proportion to that usually associated with simple stricture. In many instances the diagnosis can be made only during the operation.

In half the reported cases treatment was palliative, and in the other half radical. Perineal section or simple incision was done in ten cases. In one of these the patient was lost sight of, one lived eighteen months, and the remaining eight all died within nine months. In the ten cases treated by resection, or some form of extirpation, the result was unrecorded in one; of the remaining nine, death occurred in nine months in four, and one had a recurrence within six months of the operation. Of the remaining four the subsequent history is incomplete, but there was no recurrence at twenty-one months, eleven months, ten months, and four months respectively.

Extirpation is worth a trial, provided the disease is recognized in an early stage. The growth invariably proceeds toward the penis, but shows no tendency to invade the prostate and tissues behind the triangular ligament. The lymphatic infection occurs in the inguinal glands, and therefore is amenable to surgical treatment.

TREATMENT OF OBSTINATE CYSTITIS.

FRENDENBURG (*Tribune Médicale*, Nov. 28, 1903) recommends intravesical injections of iodoform in the treatment of cases of cystitis in which there is fetid decomposition of the urine, or in which a distinct ammoniacal reaction is present. Three cubic centimeters of a 10-per-cent suspension of iodoform in glycerin, diluted with 30 to 40 cubic centimeters of some non-irritating fluid, is injected into the bladder every second day. The action of the iodoform is so uniformly beneficial that failure to respond to the treatment may be regarded as very positive evidence of the existence of some complication, such as lithiasis, diverticula of the bladder, pyonephrosis, etc.

For tubercular cystitis the treatment suggested by Guillou of instilling a solution of picric acid into the empty bladder is the most efficient.

The topical treatment of obstinate cystitis gives immediate results without exciting pain. Symptoms improve in the following order: frequency of urination diminishes, then the pain decreases, and finally the pus disappears.

Reviews.

THE MEDICAL NEWS FORMULARY FOR 1904. By E. Q. Thornton, M.D. Sixth Edition, Revised. Philadelphia and New York: Lea Brothers & Co., 1904.

This is a small manual, bound as is an ordinary visiting list, with a wallet for prescription blanks. It is devoted to the presentation of formulæ which have been found useful by the author or by members of the medical profession in whom all of us have confidence. As Dr. Thornton is not only an active practitioner but a graduate in pharmacy as well, he has been able to prepare a manual in which the prescriptions are not only pharmaceutically elegant, to use an expression popular with pharmacists, but also correct from the standpoint of therapeutics. The fact that a sixth edition has been called for in a period of about four years proves that it is popular, and that it offers suggestions to the active practitioner which he is often glad to profit by.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by A. O. J. Kelly, A.M., M.D., with Collaborators. Volume I, Fourteenth Series, 1904.
Philadelphia: The J. B. Lippincott Company.

The present edition of the International Clinics is a very good one. There are five articles devoted to therapeutics. One of these is on the Chloride Reduction Treatment of Parenchymatous Nephritis, by two French physicians, Widal and Javal. This is followed by one upon Adonidin by Dr. Wilcox, of New York; another upon the Therapeutic Applications of Colloidal Silver by Netter and Salomon. Dr. Edes, of Boston, contributes a fourth upon "What is a Cure for Neurasthenia?" and Dr. McCaskey of Ft. Wayne, Indiana, contributes one upon the Treatment of Gastric Neurasthenia. In the articles devoted to medicine there is an interesting one upon the Increased Mortality of Pneumonia by Dr. N. S. Davis, of Chicago; another upon Cryoscopy by Dr. Henry W. Cattell; one upon Nephritis of Gastrointestinal Origin by Dr. Favill; and a fourth upon the Early Diagnosis of Pulmonary Tuberculosis by Dr. Walsh. In the department of Surgery we find an article upon the Treatment of Angioma by Dr. Carl Beck, of New York; one upon Intestinal Anastomosis by Dr. Clark, of Philadelphia; and another upon Gastrointestinal and Hepatic Surgery, as seen in the German clinics, by Charles P. Noble, M.D. There are also articles upon Gynecology and Neurology. The last 116 pages of the volume are devoted to a record of the progress of medicine during 1903. Dr. D. L. Edsall sums up Medicine, Dr. Bloodgood sums up Surgery, and Dr. Stevens sums up Treatment.

THE BLUES: CAUSES AND CURE. By Albert Abrams, A.M., M.D.
New York: E. B. Treat & Co., 1904.

The Blues, according to Dr. Abrams, may be termed in scientific medicine "splanchnic neurasthenia." In other words, he thinks that the mental depression to which this popular term is applied depends upon splanchnic exhaustion. After describing the condition which is called "the blues" and "neurasthenia," he speaks of the general symptoms of both of these conditions, and in his concluding or eighth chapter gives the treatment which he advocates. An appendix closes the volume, which covers about sixty pages. A number of subjects not closely connected with the general title of the book are also considered, such as Pulmonary Anemia, Blood-pressure, and the Liver and Heart Reflexes.

A MANUAL OF CLINICAL MICROSCOPY AND CHEMISTRY. By Hermann Lenhartz. Author's Translation from the Fourth and Last German Edition, with Notes and Additions by Henry T. Brooks, M.D. Price $3.00.
Philadelphia: The F. A. Davis Company, 1904.

In the translator's preface he asserts that this volume is especially designed to meet the requirements of the busy general practitoner as well as the specialist, since only practical material has been included. In its pages much that is theoretical has been entirely excluded. In many instances, Dr. Brooks, the translator, in going over the German text has added notes which are of very great value and materially increase the usefulness of the volume. On looking over its pages we find that it is an adequate presentation of the subject, but we also find that it fails to present it in a new form, or to give us any additional means of clinical examination from those which are already well known. In other words, the book does

not profess to be original, but simply a good working guide for the laboratory and for the active practitioner who is careful enough to examine the blood, the sputum, the urine, or feces of the patients who may come under his care.

DISEASES OF THE INTESTINES. A Text-book for Practitioners and Students of Medicine. By Max Einhorn, M.D. Second edition.
New York: William Wood & Co., 1904.

The first edition of this book having been exhausted in about four years, the author has prepared a second edition, but tells us in his preface that very little has been added to the original text, as "progress in this branch of medicine within the last four years has been but scanty." The volume is a small octavo of less than 400 pages and does not pretend to give an exhaustive summary of the literature of the subject, but on the other hand largely represents the views which are held by Dr. Einhorn in regard to the pathology and treatment of intestinal disorders. In certain sections of the book copious references are given to original papers, particularly those which have been written by German authors, and in the portions devoted to treatment, prescriptions are frequently introduced to provide models of what the physician should prescribe for the control of the symptoms which are present in various disorders of the alimentary canal. The book can be cordially commended to the general practitioner who wishes a monograph on this particular subject.

A MANUAL OF CLINICAL DIAGNOSIS FOR STUDENTS AND PRACTITIONERS. By Charles E. Simon, M.D. Fifth Edition. Copiously Illustrated.
Philadelphia and New York: Lea Brothers & Co., 1904.

The first edition of Dr. Simon's book appeared in 1896. That it should have reached a fifth edition in eight years is certainly creditable to its author and to the profession as well, since it shows that physicians are anxious to keep abreast of the methods by which we study disease with the aid of microscopy and chemistry. At the present time the volume is one of nearly 700 pages and fulfils in a most admirable manner the mission which its author has attempted to carry out. It can be used in the laboratory of the specialist who does little practice, but who is fond of studying the alterations in normal secretions produced by disease, or it can be employed with equal value by the bedside practitioner who wishes to carry out careful investigations, or who desires to instruct his assistant so he will be able to refer to him for information specimens which are brought to his office by his clients. We would especially commend the colored plates, which are much better than are usually found in works of this character.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS FOR STUDENTS AND PHYSICIANS. By John H. Musser, M.D. Fifth Edition, Revised and Enlarged.
Philadelphia and New York: Lea Brothers & Co., 1904.

We are glad to note the appearance of the fifth edition of this most excellent modern book on Diagnosis. When it first appeared it gave promise of the success which has since come to it, and at the present time it is without doubt the most exhaustive and encyclopedic work upon this subject, by any single author, either in this country or abroad. The number of pages in the present edition is over 1200, and the illustrations cover everything that is needful to describe measures employed for diagnostic purposes. The original drawings are excellent, and the plates illustrating the microscopical appearance of the blood in various conditions of disease are remarkably good. This is saying a good deal when it is remembered how difficult it is to obtain good original drawings of the blood, and how still more difficult it is to reproduce them.

Musser's Diagnosis is a work which is to be turned to by physicians whenever they are seeking for information not only of a general but of an exact character, and in its pages the seeker after knowledge will find descriptions of many facts which cannot be included in smaller works on diagnosis. If any criticism can be made of the volume at the present time, aside from its size, it is that there is an embarrassment of riches in the way of illustrations, some of which we think do not add sufficiently to the value of the volume to justify their appearance. However, physicians who are not in close touch with hospital practice are doubtless best qualified to determine their value.

We do not consider that it is the function of the reviewer to give advice as to the purchase of books, but merely to

express an opinion concerning their usefulness, but in this instance we can unhesitatingly recommend Dr. Musser's Diagnosis to every physician who wishes to be in possession of the most exhaustive and accurate volume upon this subject.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

The treatment of urinary tuberculosis has been so unsatisfactory hitherto that one is glad to hear of any new method which may offer better results. Mr. Hurry Fenwick recently communicated to the Medical Society of London a paper on this subject, in which he advocated the use of Koch's new tuberculin for cases in which the tubercle was affecting the bladder only. The difficulty however for most medical men would be to decide when the bladder is affected alone; the presence of tubercle bacilli in the urine must be definitely ascertained by a competent bacteriologist; the condition of the kidneys, whether tubercular or not, could be determined in many cases by the use of the cystoscope; any tubercular affection of the kidney is usually unilateral, and thickening of one ureter, a usual association of the renal disease, could be detected by the cystoscope. Mr. Swinford Edwards corroborated his statement as to the value of tuberculin in tuberculosis of the bladder; he had used it in several cases, and always with advantage, symptoms being greatly diminished after the injections. When the kidney shows a condition of chronic tubercular disease with thickening of the ureter, Mr. Fenwick would remove it; among twenty-five nephrectomies he had had one death. But it is very important that the affected kidney shall be removed as early as possible; fatal results are much more likely to occur after operation where this has been delayed for a long time. He thinks urotropin is of little use for these conditions; santal oil is perhaps of some value. Fortunately pulmonary tuberculosis is not commonly associated with urinary tuberculosis, but where the lungs are affected neither tuberculin nor operation is advisable for the urinary disease.

So much was heard of the Nauheim treatment for heart disease a few years ago that one might be surprised at the obscurity into which it has retired again if one were not by this time accustomed to the innumerable new and infallible methods of treatment which "blossom but to die." However we were recently reminded of the existence of Nauheim by a paper read by Dr. Franze before the Hunterian Society on the value of Nauheim baths in diseases of the circulation. The springs contain sodium, lithium, and calcium, and carbonic acid gas, and are of three different temperatures, 85°, 90°, and 95° F. respectively; they stimulate metabolism, and so improve digestion and nutrition; they cause contraction of the vessels of the skin followed by dilatation, thus evidently improving the circulation. Dr. Franze considers that any patient who is well enough to bear the journey to Nauheim is well enough to bear the bath treatment, and he specifies as conditions for which this is suitable, valvular disease due to rheumatism, weakness of the heart muscle (for instance, after influenza or typhoid), fatty heart, and angina pectoris with arteriosclerosis. It is fairly evident from the remarks made by subsequent speakers that the English mind is shockingly skeptical; we are constantly pelted with pamphlets demonstrating beyond dispute—on the unimpeachable authority of the local physician—that the baths of "this delightful resort" contain various salts to exactly six places of decimals, and hence are suitable for most of "the ills which flesh is heir to;" in many cases the efficacy of this particular bathing-place is confirmed by illustrations of the charming scenery in the neighborhood. Perhaps there is a tendency in this country to underrate the value of "balneo-therapeutics," which undoubtedly have a very real importance in practical medicine.

An interesting observation on the use of drugs in heart disease was one recently reported by Dr. C. W. Chapman, who showed at the Society for the Study of Disease in Children a girl aged twelve years who had suffered with recurring dilatation of the heart secondary to endocarditis of the mitral valve. The usual cardiac remedies were tried, and for a time compensation was reëstablished, but subsequently the ordinary drugs failed to relieve her, and a trial was therefore made

of adrenalin solution in five-minim doses every four hours. The result was most satisfactory; the heart condition steadily improved.

On few subjects perhaps is there more divergence of opinion than on the feeding of infants; but during the past few years —stimulated no doubt by the progress made in America in this matter—the profession not only in London but throughout this country has begun to realize the vast social importance of the proper feeding of infants. There has been great outcry recently about physical deterioration, and whilst there has been much talk of defects in the curriculum of school-life and in physical training in later years, it is satisfactory to find that some even of the laity have perceived that the fault lies not only, probably not chiefly, in the culture of the already developed youth, but in the faulty feeding which interferes with nutrition during the most active period of development, namely, infancy. There can be no doubt that the start in life may be of the utmost importance in determining subsequent growth and development; "wohl begonnen, halb gewonnen" holds good in the development of the individual as well as in the affairs of life. One of the daily papers, the *Pall Mall Gazette,* during the past month published an article emphasizing the importance of pure milk for infants who cannot be fed on the breast, and pointed out very wisely that to supply pasteurized or sterilized milk as some municipal bodies are now doing for the feeding of infants is but a poor apology for the supply of clean milk, and that so long as babies are fed on milk which is not clean, there will be weakly babies who, if they do not die, will grow up physical degenerates. Another aspect of this subject which has recently been under discussion, and which is probably even more serious, is the wide-spread failure of mothers to suckle their infants. There can be little doubt that in London, at any rate, a large majority of infants are either not fed on the breast at all, or are breast-fed only for three or four months or less. Amongst the well-to-do this failure of suckling arises frequently from unwillingness to suckle their infants, amongst the poorer classes it is often due to the fact that the mother has to go out to work. Even with the best of intentions there are few mothers who have the requisite knowledge to manage artificial feeding properly, and amongst the poor such feeding is almost invariably faulty in character. So long as this state of things exists it is not surprising that army officials should complain of the physical unfitness of recruits. Any one who is familiar with the wide prevalence of rickets amongst the poor and middle classes, and realizes how rickets interferes with growth and development, will understand how faulty infant feeding means physically unfit adults.

It were much to be desired that medical men would insist upon breast feeding wherever it is possible; one can only fear that the doctor too often consents to artificial feeding, or even recommends it, in a weak compliance with what he knows to be the wish expressed or unexpressed of the mother. Few would have the pluck of a correspondent to one of the medical journals recently, who stated that it was his habit to decline to attend a confinement if the woman expressed her fixed intention not to suckle the infant; a medical man, he says, should give the question of abandoning suckling as much consideration as he does the question of inducing premature labor. It would be well if all medical men had as high a sense of their responsibility.

An attempt is being made to introduce a bill into parliament for the state registration of trained nurses. At first sight there is much to be said in its favor: a minimum standard of education might be fixed, and common rules of discipline provided; and the general effect of such registration might be to raise the standard of nursing. But there are grave objections; technical qualifications are by no means the first essential to the making of a good nurse; the evils of examination systems are well enough known, and it would be bad indeed if an utterly unsuitable woman could be certified as a qualified nurse because she had passed certain examinations entitling her to state registration; moreover, it is undesirable that any uniform training should be made compulsory on all nurses as such a system would require. These and other arguments have been brought forward on both sides, and there is great discrepancy of opinion amongst the medical profession

on the subject. The Royal College of Physicians in Ireland has recently carried resolutions in favor of such registration, whilst many of the leading members of the profession, including Lord Lister in England, have signed a manifesto against it.

It is not the first time that such state registration has been proposed. Ten years ago a similar scheme was strongly opposed, as the present one is, by leading representatives of the nursing departments of the large hospitals.

Since my last letter a distinguished member of our profession in London, Sir Henry Thompson, Baronet, has passed away. I need say nothing of him, for full accounts of his brilliant career have appeared in many of the journals. He was not only one of the greatest surgeons of the last century, but was no mean artist, and as a literary man enjoyed the friendship of Thackeray and Dickens.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

At a recent meeting of the Society of Surgery the treatment of tetanus by chloral was discussed. Dr. Potherat presented a patient, a youth sixteen years old, who after a gunshot wound of the hand showed symptoms of lockjaw. A 10 cubic centimeter injection of antitetanic serum was made immediately, but gave no result. The treatment by chloral was then tried, after cleansing the wound. Twenty grammes (*sic*) of chloral were given daily, and the third day there was a notable amelioration. The treatment was kept up for thirty days, doses varying from 10 to 15 grammes being given, and now seven weeks after the accident the patient is cured.

Dr. Bazy relates a similar case, which he treated by serum and chloral (10 to 12 grammes) at the advice of Dr. Roux of the Pasteur Institute. This treatment was without effect on the infection, which was only stayed by large doses of chloral. Dr. Labbé said he agreed with Dr. Bazy, and Dr. Lucas-Championnière remarked that Nocard, who had been the inventor of the antitetanic serum, had never believed in its therapeutic properties. A certain number of cases have been reported, but almost always it was found necessary to use very large doses. Professor Terrier does not even believe that antitetanic serum is always efficacious as a preventive. A patient in his service showed symptoms of lockjaw two months after a preventive injection, and Dr. Reclus has seen lockjaw two weeks after an injection.

Dr. Linossier has recently expounded before the Society of Therapeutics the rules to be followed out in establishing the regimen of a patient suffering from a liver complaint. The two most important rules are to avoid giving much food and to prevent dyspepsia. From a practical point of view the following indications should be carried out: Very little or no meat, with the exception of lean ham, no pork or bacon. Fresh fish may be allowed. Milk should be given in abundance; some physicians have feared giving the cream, which in most cases should not be totally removed on account of its being so nourishing. Easily digested vegetables, such as peas, green beans, asparagus, artichokes, cooked salads, are recommended. On the other hand, cabbage, carrots, and turnips are to be avoided. Bread and breadstuffs should be eaten in moderation, as they are apt to be acid, the contrary of potatoes. Fruits without acidity, when quite ripe, are to be recommended, as they are slightly laxative, and the various salts they contain, such as the citrates, malates, tartrates, are transformed into carbonates. Plain water, or a light mineral spring water, is most excellent. Coffee should be partaken of sparingly, and chocolate avoided on account of the oxalic acid and fat it contains.

At a recent meeting of the Society of Surgery Dr. Poirier presented two cases of cancer of the tongue which he had operated respectively thirty-three and twenty-three months ago. There was as yet no symptom of recurrence. One of these patients is a syphilitic, a condition which according to Poirier is often found in cancer of the tongue. Poirier always removes the chain of glands on both sides of the neck, which according to him is the only sure method of removing all cancerous tissue. Drs. Sebeleau and Quénu agreed with Dr. Poirier in his treatment, but the former remarked that the results varied according to the position of the

tumor, a recovery being more often seen when the tumor is situated in the forward part of the tongue.

In a recent number of the *Journal de Médecine de Paris,* Dr. Condamin described a new treatment against morning sickness when the latter becomes very much pronounced. This treatment consists in washing the blood by means of injections of normal saline solution, and is carried out in the following manner: Absolute rest of the stomach by forbidding the use of all liquid or solid food during eight or ten days, and the daily injection per rectum of 3 or 4 liters of normal saline solution. If there is intolerance a few drops of laudanum may be added, or the solution may be injected hypodermically. After ten days the patient is brought back to the usual regimen little by little. This treatment has been used with unfailing success in seven or eight cases.

The question of having perfectly pure, fresh milk has been the cause in Paris of a number of articles in the daily papers, such as *Le Matin.* The campaign undertaken by the press has not however led to any serious result. The question has been taken up in *La Presse Médicale,* and P. Diffloth, agronomical engineer and special professor of agriculture, has begun publishing a series of articles in which he describes the causes of the poor quality of the milk employed in the French capital. According to Diffloth the amount of milk used in Paris has increased from 200,000 liters in 1840 to 800,000 in 1903, and yet its price has not noticeably increased. All the other factors, such as fodder for cattle, the octroi duties, the increase of rents, and other dues have increased the expense of selling the milk. The tendency has therefore been to obtain more milk from each cow individually, and instead of 6 or 8 liters, some 20 or 30 liters. To do this it was found necessary to have cows which had calved for the seventh or eighth time, and to feed them on certain waste products, such as malt or various oils produced by the colza plant. The milk furnished by such means may look very well, but is often enough indigestible, and does not suit the stomach of an infant.

Dr. Josias, physician at the Children's Hospital, uses the following preparation in whooping-cough:

Benzoate of soda, 1 to 3 grammes;
Orange flower water, 10 grammes;
Lime tree water, 70 grammes;
Syrup of Desessarts, 30 grammes.

A teaspoonful every hour.

Dr. Variot, who is also a physician at the Children's Hospital, uses the following:

Bromide of potassium, 8 grammes;
Tincture of valerian, 8 grammes;
Distilled water, 250 grammes.

For children up to two years old, 3 teaspoonfuls; from two to five years, 3 dessertspoonfuls; up till ten, 3 large spoonfuls.

The epidemic of typhoid fever which has existed in Paris since the latter part of February has now ceased. The largest number of cases seen in a week was 177. The mortality seems to have been larger than usual. In one street there were 22 cases, and two deaths took place within the space of twenty-four hours. The *Matin,* a morning paper, had taken up this matter, and it was found that the epidemic was due to a case of typhoid fever in Normandy, in the watershed of the Avre, one of the streams which furnishes the Paris water-supply. This case was only discovered after two weeks by the medical inspector, and the dejecta had of course not been disinfected. The epidemic spared the greater part of Paris, cases being found in the 16th, 17th, and 13th arrondissements. Most virulent editorials were written by the *Matin* against Dr. Monod, the chief of the Bureau of Hygiene, and against Bechmann and Martin, who have the control of the water-supply. The Paris water-supply is certainly much better than it was twenty years ago, and better than that of most cities, but it sometimes proves inadequate during the warm weather, and then filtered Seine water is used.

It is interesting to note the expenses incurred by the Assistance Publique in Paris to pay its employees and physicians in the various hospitals. Out of a total outlay of 37,180,956 francs, 31 per cent, or 11,396,983 francs, is employed for salaries. The medical and surgical staff come in for only 1,500,000 francs, the directors and managing personnel cost 2,652,000 francs, and 6,400,000 francs is paid to the nurses. The amount employed in this manner is certainly very large, and now that it has been decided to create special tuberculosis pavilions it cannot help but increase.

Biology